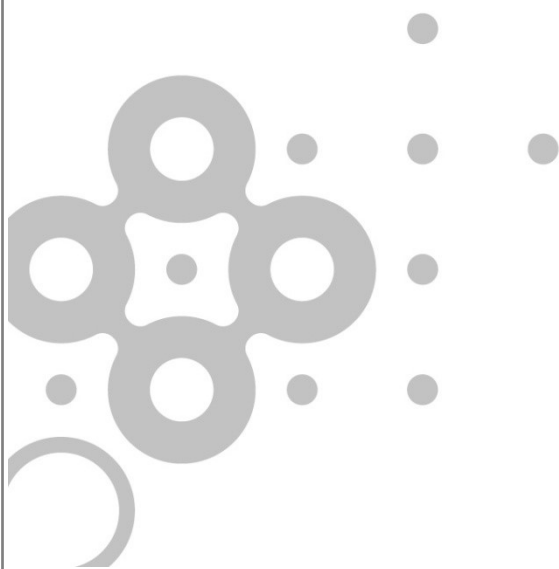


OPERATING MANUAL


BIOLOGICAL SAFETY CABINET

MODEL : NB-604WS-90/120/150/180



©Safety Symbols©

- It is important that you understand the warnings listed throughout this manual before you operate this unit.

 Warning If you don't keep this warning, you can get an accident or a fire.	 Caution If you don't keep this caution, you can get injured as well as a property loss					
 Warning	 Caution	 Compliance	 Prohibition	 No disassemble	 Remove plug	 Ground

1. Precautions for installation



Warning



Connect to proper supply voltage.

Verify that the supply voltage matches the voltage and hertz written on serial tag.

Failure to do so could damage the unit or affect performance.



Do not operate in environment with RH exceeding 80%. Doing so could cause leakage or corrosion.



Do not expose unit to direct sun light or high temperature

The recommended indoor operating temperature is 20°C ~ 30°C



Do not use flammable substances near the product. Doing so could create a fire hazard.



Provide a minimum space of 20cm behind the unit for clearance of the power cord.



Install unit on solid level surface. Failure to do so can result in excessive vibration.



Do not lay the unit down on its sides or top. Doing so can result in damage to the unit



Do not disassemble electric apparatus and illumination system for safety.



Keep the part of door slide clean all the time not to run any harm materials into unit causing a change of temperature.



Plug out when occurring any fire hazard or smoke from unit

2. Precautions for use



Warning



Do not disassemble, or attempt to repair the unit without proper training, or personal injury or damage to the unit could occur.



Do not use the product for anything other than what it is intended for, or personal injury or damage to the unit could occur.



Do not use flammable sprays near the product. Doing so could cause fire

3. Precaution for ground connection



WARNING

- Please ground before use the product.

If you don't ground, you can get a malfunction and an electric shock.



When you are at these places, you can't ground

Must buy an earth leakage breaker and connect it to the outlet

(It causes a fire and an electric shock and leakage without an earth leakage breaker.

Do not ground at following places.

(gas pipe, water pipe, pipe, lightening rod, telephone wire)

(It causes a fire, an electric shock and leakage.)



If you don't have the outlet for the AC 220V, bury the line under the ground after connect it to the copper plate.

Improper ground connection causes an electric shock and leakage.

I . Application

604WS Series work station are Class II, Type A2 Biological Safety Cabinet. It provides a personal, product and environmental protection by HEPA filter air circulation.

II. Feature

- High Efficiency Glass Fiber HEPA Filter(30% Air Exhausted, 70% recirculated to chamber)
- Detachable Base Stand when using work bench on a table.
- Controllable Air Flow Speed(Level 1 ~ 9)
- LCD Display with Microprocessor Control
- Timer of U.V Lighting / A display mode showing used time of HEPA filter.
- Sash Open Alarm / An Alarm with Message on programmed HEPA Filter Replacement time.
- Interior Power Outlet, Gas Valve and Vacuum Cock.
- Removable Stainless Steel Cover Work Tray.

III. Specification

Model.	NB-604WS90	NB-604WS120	NB-604WS150	NB-604WS180
Wind Flow Type	Recirculation 70%, Exhaust 30%			
Working Area	800x600x600	1200x600x600	1500x600x600	1800x600x600
Dimension	950x800x2020	1280x800x2020	1630x800x2020	1930x800x2020
Wind Velocity	0.3~0.4m/sec., Adjustable Type			
Clean Lines	Class 100			
Flow Rate	32m3/min			
Illumination	55W x 1ea	36W x 2ea	55W x 2ea	55W x 2ea
Sterilization	U.V 20W	U.V 30W	U.V 40W	U.V 40W
Utility	Electric Outlet, Gas Cock, Vacuum Cock			
Noise	Less than 60dB			
Filter	Glass Fiber HEPA Filter x 2ea			
Material (In)	Stainless304, Polishing Plate			
(Out)	Powder Coating			
Main & Exhaust Filter	0.3 μ m Particle 99.97% Cut-Off			
Wheel	GD-40S (Foot Master)			
Power	110V / 220V, 50 / 60Hz			

IV. Control panel

1. Control panel



- ① : Display window
- ② : FAN ON/OFF lamp
- ③ : FL LAMP
- ④ : UV LAMP
- ⑤ : FAN ON/OFF button
- ⑥ : FL LAMP ON/OFF button
- ⑦ : UV LAMP ON/OFF button
- ⑧ : FAN SPEED and TIMER setting up button
- ⑨ : Menu select button(Key Shift Button)
- ⑩ : Increase or Decrease button.

2. Operation

- Initial set up : When plug-in, control panel shows fan speed, status of UV and lamp, TIME



* TIMER

UV lamps keep on as long as time set

* FAN SPEED

The range of fan speed is from 1 to 9 "9 being strongest"

* UV, FL LAMP On/Off

The same button is used for turning the status of ON/OFF for UV, FL lamp.



* UV, FL LAMP works in the opposite position

The reason that UV and FL lamps work in opposite way is to avoid any possible damage to user not easy enough to recognize the UV being turned on in a state of UV and FL lamps being turned on.

When pressing MODE button for 5 second, you can reach in PARAMETER CHANGE mode, There are 5 section in this mode, if you need UV, FL lamps working in opposite way Please get to MODE1 at 5th section and leave the hundreds place with 1.

Please refer to PARAMETER PAGE for further details.

*** Warning message for door open**

Warning message will be shown on display panel when the door is open up against certain height in a state of motor or UV lamp on

Below screens will come up by turns with beeping.



*** Warning for filter change**

There is a system to accumulate the time of Fan running.

When the time set reaches to the timing of Fan change, a warning message as below will come up on display window with a beeping.



After replacing Fan, press Mode button for 5 seconds and input the used time 00000 then the warning message will disappear.

Caution

The life span for Fan depends on the condition of installation place.

In order to prevent possible contamination, It is suggested to replace Fan when it gets 3000 hours.

3. SET-UP

Below screen will be shown when pressing MODE button if you are in need of changing FAN speed and UV lamps operation.



Input the desired value with ▲ button after locating cursor with ◀ button.

You can check normal screen with beeping when pressing MODE button after finishing input
Please control the cursor with ◀ button.

<TIME SETUP>

You can set up the time parameter at PARAMETER CHANGE mode as follows

00:00(HH:MM) hour : minute

00:00(MM:SS) minute : second

The timer is not set when following message shown 00:00

* PARAMETER CHANGE MODE

Pressing mode button for 5 second leads you to parameter change mode.

There are 5 sections in this mode and sections are as follows.

(used time, max time, beep, time unit, mode1)

If you need to go to next section, press mode button.

If you need to return back to initial screen, press mode button for 5 second.

If there is no input in this mode for 1 minute, it returns back to initial screen.

- PARAMETER CHANGE MODE LIST.

1) USED TIME

indicates the time of filter used.

Range : 00000 - 59999 hours

Please set up 00000 right after changing filter only.

When the used time has been past more than MAX TIME, there will be a beeping as well as warning message on display when turning on main switch and fan button in order to alert user to change filter.

2) MAX.TIME

indicates the maximum usage time for filter.

Range : 00000 - 59999 hours

It is recommended to set up MAX TIME according to type of filter.

When usage time reaches to set up time of MAX TIME, there will be a beeping as well as warning message on display when turning on main switch and fan button in order to alert user to change filter.

3) BEEP (beep on time) :

Within the range of 0-99sec, you can set up time for UV lamps, when the setup time finishes. There will be a alarm. If the time is 0, UV lamps remain turned on.

4) Time unit:

You can set up time unit at TIME UNIT MODE

**Parameter Change
Time Unit : HH:MM**

HH:MM: hour : minute

OR

**Parameter Change
Time Unit : MM:SS**

MM:SS: minute : second

V. Maintenance

1) Filter

There are 2 HEPA filters. One is for main filter, the other one is for assistance.

The HEPA filter can remove 99.99% of all particles greater than 0.3 microns. and usable time for is about 3000hours.

2) U.V Lamp

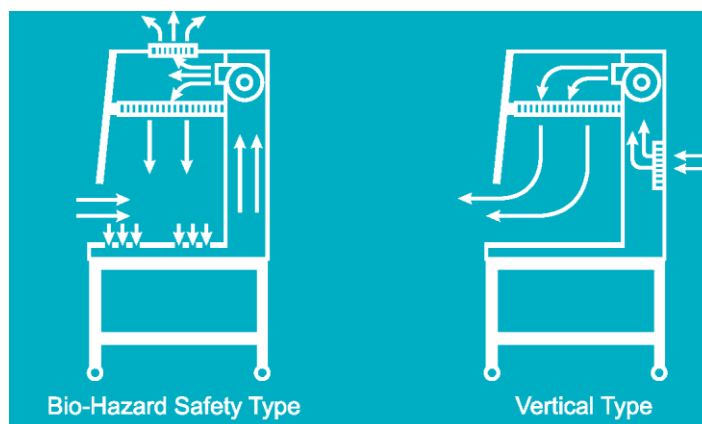
There are 2 UV lamps.

The power switch and one of two UV is associated with each other

So when power switch is on, One of two UV is on and does the primary sterilization for flow-in air. The other one operated by button is located upper side of chamber in which sterilizes any harm in chamber.

Do not look at UV lamp directly for your safety.

VI. Air Flow Diagram (Bio Hazard type)



☎ Should you have inquiries, please contact

N-BIOTEK Inc

Tel: (+82)32-321-2100 Fax(+82)32-328-2372

e-mail: export@n-biotek.com