

OPERATING MANUAL

Clean Bench (PCR Workstation) NB-603WS



N-BIOTEK
Leading Life science

INTRODUCTION

Thank you for purchasing our Clean bench, the germ free work station.

This operation manual describes practical information such as performance, usage, and cautions and notices for the use of the product.

So, before using the product, please read it carefully all the safety instructions described in this manual and keep this manual for future use.

WARRANTY

Item	Clean Bench	Model	NB-603WS
Date of Installation	mm-dd-year	Supplier	
Serial NO.		Period	1 year

N-BIOTEK provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

1. The free warranty service will be provided once the unit is proved to be defective by wrong workmanship after NBIOTEK or reliable distributor's examination.
2. The warranty period is 1 year from date of installation or 1 and Half year from the date of shipment from NBIOTEK, whichever is sooner as indicated in above table. This period is proved by serial no.
3. N-BIOTEK will not be responsible of free warranty service for the faulty caused by user's improper operation, excessive use, use of incorrect voltage & frequency, storage in wrong environment mentioned in Manual.
4. Complete the above table after installation and keep this card.
Then, present it to a dealer or N-BIOTEK when warranty repair is needed.

Signed By



President Daeyong Kim
N-BIOTEK, INC.

PRECAUTION

- **Precaution is to prevent the possible accident or danger during operation. So, you must keep it.**

- **Precaution is separated into caution and warning. And, each of them has following meanings.**



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

- **Other Marks**



Warning



Caution



Compliance



Prohibition



No disassemble



Remove plug



Ground

1. Precaution for using the power



WARNING



Use this product only internally.
(If the product is used at the place in different power pressure, it causes a fire and malfunction of the product.)



Do not make the power plug be pressed by back of the product.
(A space between the product and the plug must be 20cm at least.)



The power outlet must be only for this product.
(Using various products simultaneously can cause a fire)



Wipe the power plug with a dry towel and connect it properly.
(Foreign substances or unsafe connection can cause a fire.)



Do not bend the power cable harshly and do not make it be pressed by heavy products.
(When it is damaged, it can cause a fire.)



Do not touch the power code with wet hands.
(It can cause an electric shock.)



Do not use the damaged power cord and outlet.
(It can cause an electric shock and a fire.)



When the smoke comes out from the product or smell something is burning
or any other strange symptoms are occurred, pull out the power cord and stop using it.
(It can cause an electric shock and a fire.)

2. Precaution for installation



WARNING



Use it with the proper voltage.
Please check the voltage & Hertz written on serial label.
(Over-voltage, low-voltage can damage the product and poor performance.)



Do not install at a humid place.
(It can cause an electric leakage accident and a corrosion of the product.)



Keep this product out of the direct ray of sun and do not install at a hot place
or a place that is near an electric heat.
(The proper room temperature is 20°C ~ 30°C, Humidity 40%~60%RH)



Do not put inflammable substances near the product especially, using fire in work station.
(It can cause a fire)



CAUTION



The product requires the distance of at least 20 cm from the wall for well ventilation.
(When ventilation works well, you will use the product satisfyingly
regarding a cooling ability and a heat.)



Install at a flat and solid place.
(If the ground is not flat, it causes a vibration of the product.)



The product must be held up during the movement.
(Pushing or pulling the product can damage some parts of the product.)



When the movement of the product is required,
please tie up the door and other movable part with a tape.
(Able to get an injury by opening door and get a damage of the product.)

3. Precaution for use



WARNING



You must not disassemble, fix and remodel the product by yourself.
(You can damage the product throughout a fire and malfunction or get a loss from a different study result than the original purpose)



Do not use an inflammable spray near the product.
(The switch and other electric connection parts can cause a fire.)



Be careful to use inflammable substances such as benzene, thinner, alcohol and LP gas
(It can cause a fire and an explosion.)



To prevent water and experiment material from going into the control panel during the experiment, make sure to clean the control panel with a dry towel
(It can cause a fire and an explosion.)



Open and close the door softly and please use a door knob.
(A heavy shock can damage the product and breakdown the operating part.
Also your hands can be stuck between the door and body.)



Do not wash the product with excessive quantity of water, thinner, benzene and Petroleum.
(It can cause an electric leakage, and malfunction or damage of the surface.)



Avoid direct UV light to your skin or eyes.
Don't take UV or another LAMP out when it is turned on.

4. Precaution for ground connection



WARNING

- Please ground before use the product, if you don't ground, you can be electrically shocked when malfunction or an electric leakage occurs



At the location where can not allow to ground.
* Please buy the equipment to prevent elect leakage.
* An electric shock, an electric leakage and a fire can be occurred without an electric leakage breaker.



Do not ground to these places; Gas Pipe, water pipe, pipe, lighting rod, telephone wire etc.
* Wrong ground connection can occur an electric shock, an electric leakage and a fire.



If you don't have the outlet for AC 220V, then bury it under the ground after connecting the ground line to copper plate.
* No ground connection can occur an electric shock, an electric leakage and a Fire.

FEATURES

NB-603WS is HEPA filtered clean bench and UV PCR Workstation. This work station is bench-top type, made of metal framework, polycarbonate walls and working surface made of stainless steel. With open UV lamps and horizontal air circulation through HEPA filter, this bench is used during operation with DNA/RNA sample especially, for PCR work using Thermal Cycler.

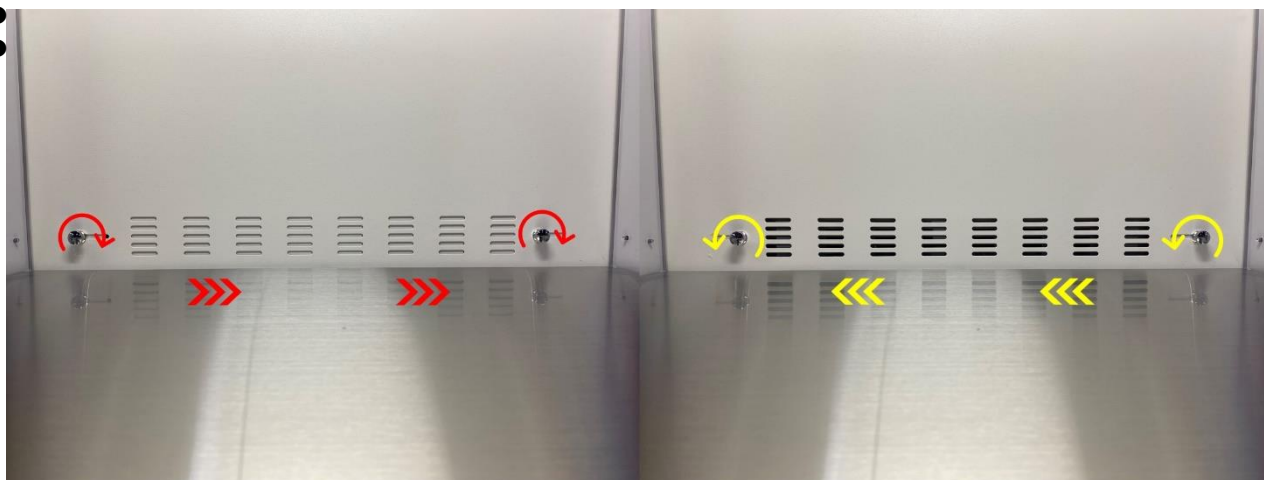
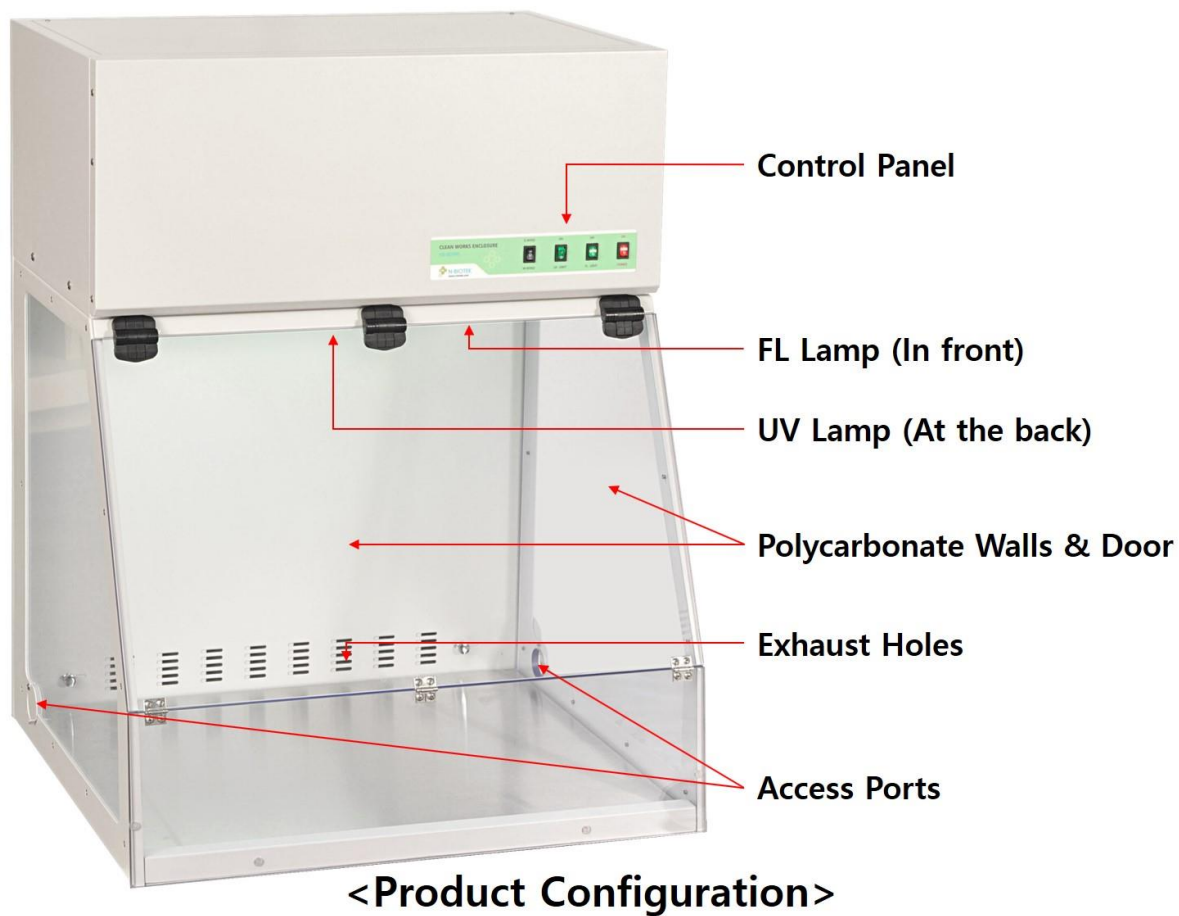
And also, this is used for the research which require general clean area but, not proper for sample handling which require Biological Safety.

- **CLASS 100 Environment with HEPA filter.**
- **Vertical Laminar Air flow without pre-filter and re-circulation**
- **Polycarbonate side walls and full open door with foldable hand access (17cm from bottom)**
- **Long Life Time UV Lamp (Average 4,000 hours)**
- **Ozone free high-density UV decontamination**
- **Stainless Steel Work Surface**
- **Low Noise Blower Motor (Cross flow type Fan)**

SPECIFICATION

ITEM	NB-603WS
Exterior Dimensions	700(W) X 650(D) X 940(H)mm
Working Area Dimensions	675(W) X 570(D) X 650(H)mm
Illumination	F.L 36W X 1ea
Sterilization	UV 15W X 1ea
Blow Fan Type	Cross Flow Fan
Main Filter	HEPA Filter (0.3 μ m 99.99%)
Exhaust Filter	None
Flow Type / Rate	Vertical Laminar Flow (ONLY) / Exhaust (Without Filtering)
Purity	Class 100
Door Type	Lift-Up Open
Material	
Inner	Stainless steel (SUS304)
Outer	Clear Polycarbonate
Power	110/220V, 50/60Hz, 100W
Weight	66kg

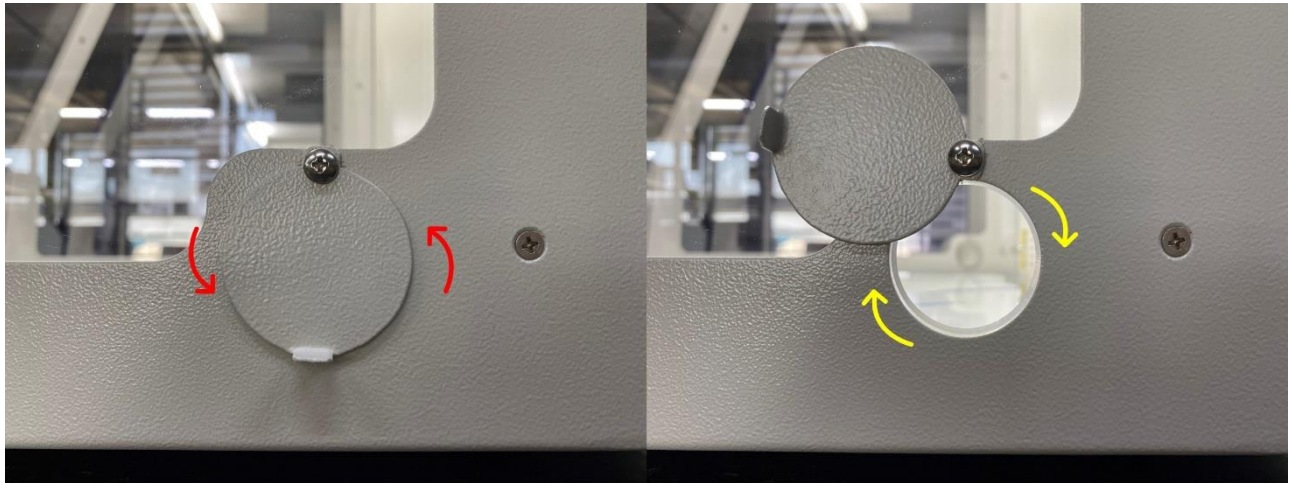
CONFIGURATION



<Exhaust Holes **Close**>

<Exhaust Holes **Open**>

- To open exhaust holes, please turn both screws to the right and slide them to the right side.
- To close exhaust holes, please slide screw to left side and turn both screws to the left.



<Access Port **Close**>

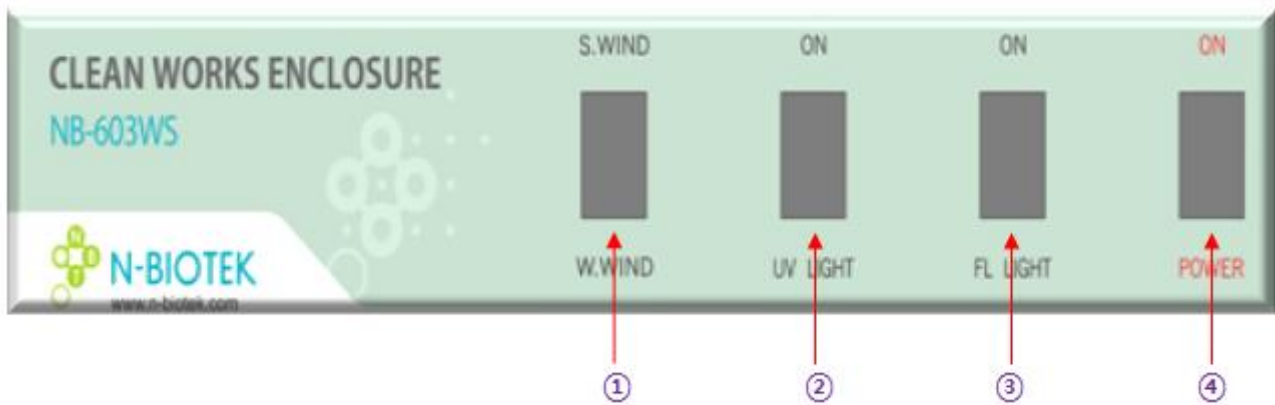
<Access Port **Open**>

- Regardless of left or right, just turn around the cover to open the access port.
- Through this port, you can install equipment including cables.

<HEPA Filter>

- The top of the clean bench is equipped with the HEPA filter efficient up to 99.99% at 0.3 μm
- Before use of work station, please make chamber clean with soft fabric and ethanol. And then conduct UV sterilization. After Sterilization, ensure to turn off UV lamp. The Lamp is not able to be turned off automatically when opening door.

CONTROL PANEL

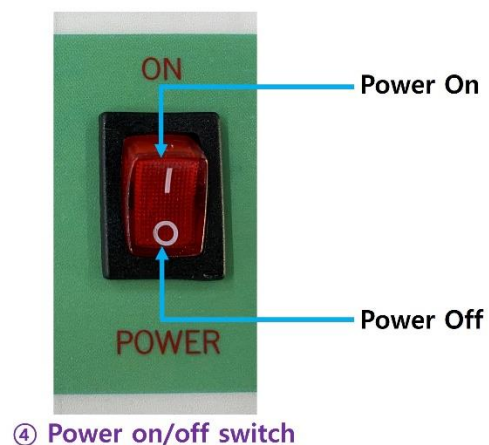
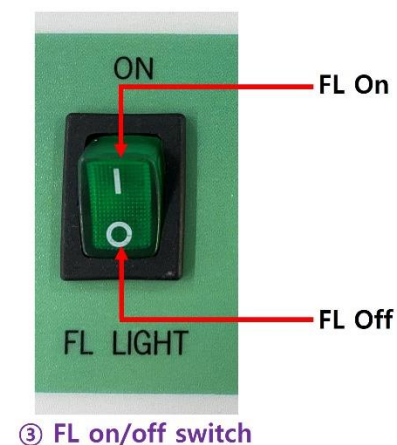
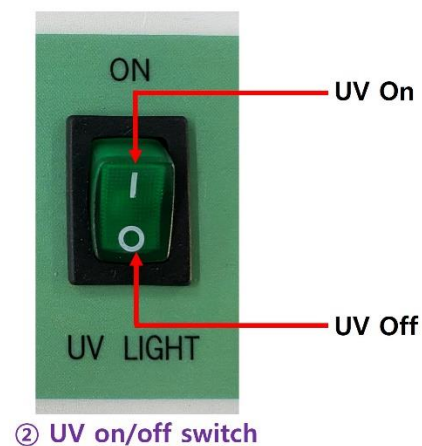


①: Fan on/off s/w

②: UV on/off s/w

③: FL on/off s/w

④: Power on/off s/w



Don't expose your body, skin, eyes to UV light.

UV light is only controlled manually. So, ensure to turn off UV light when opening door.

OPERATION

◆ Installation

1. Move to this bench at the desired place and un-pack carefully.
2. The unit should be leveled in all direction (side by side, front to back and ground) and free from vibration.
3. Connect electric power plug to proper outlet.
 - ※ Check the electricity specification on serial label before connecting the power plug (220V/110V, 50Hz/60Hz)

◆ Operation

1. Turn on the power s/w to operate the product.
2. Turn on the UV lamp about 30 minutes before the experiment for sterilization of the chamber.
3. Turn off the UV lamp to start the experiment and turn on the FL light
(if need to light on in chamber).



UV lamp must be turned off while working in chamber.

4. The strength of wind can be controlled by the wind control s/w ; place the switch at S.WIND to use the stronger wind and place it at W.WIND to use the weaker wind and place it at the middle to turn off the wind.

MAINTENANCE



Make sure to unplug the unit from the outlet before cleaning the unit to avoid from an electric shock.



Pull the plug when disconnecting from the outlet. Do not pull the power card.
Do not use acid solution, benzene and sharp objects to clean the equipment.
It may cause changes of color of the equipment.

(1) To clean the inside.

- Wipe the inside with a soft cloth using a neutral detergent.

(2) To clean the surface of the equipment.

- Use a soft cloth with a neutral detergent and wipe the unit.
- Do not use organic solvent.

(3) To clean the electric parts.

- Always use a dry cloth.

(4) If the product will not be used for a long time

- Remove the plug from an outlet and Clean the unit with a soft towel.
- If necessary, wrap it and store it. This helps minimize contamination on HEPA Filter.

Note :

1. HEPA FILTER

Replacement time for HEPA filter differs depending on time of use and clean condition of room where this clean bench is used. In normal laboratory condition, recommendable time for replacement is after 5,000 hours. As there is no digital indicator for the replacement of HEPA filter in this work station, regular check on particle amount in chamber by precise particle counter is recommendable.

If particle($0.3\mu\text{m}$) amount is higher than 10,200 in continuous air circulation in sealed chamber, it means this does not meet the requirement of Class 100 environment.

2. UV and Fluorescent LAMP – As long as size, required electricity (15W for UV, 36W for FL) are same, sourcing those items locally is no problem. Just ensure that power have to be off before replacement of these lamps.

TROUBLESHOOTING



Switch off the unit before any maintenance and make sure to disconnect the power.

If you are not authorized personnel, do not try to open, repair, or modify the unit

It can cause a fire or malfunction inflicting an injury upon people.

Symptoms	Corrective Action
The unit does not operate	<ul style="list-style-type: none">- Make sure the power cord is plugged- Make sure the switch is on- Check the power outage
Decrease of clean air inflow	<ul style="list-style-type: none">- Check the contamination of the filters through using the manometer- Replace the filters when it requires
Failure of sterilizing	<ul style="list-style-type: none">- Check the operation of the UV lamp
Malfunction of the controller	<ul style="list-style-type: none">- Check whether other high voltage electric equipment is working nearby.