

# OPERATING MANUAL

## GIANT ROLLER

< NB-204GR3 / NB-204GR10 >



\* Design is subject to change without prior notice for improvement of performance.

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## SAFETY AND GENERAL PRECAUTION

- Precaution is the subject to follow without fail, which is to prevent the possible accident or danger.
- Precaution is separated into 'Warning' and 'Caution'. Each of them has following meaning.



**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 Signs



**Warning**



**Caution**



**Compliance**



**Prohibition**



**No disassemble**



**Remove plug**











**Ground**

## 1. PRECAUTION FOR ELECTRICITY



**WARNING**

-  Use this product only internally. (220V, 60Hz)  
 (If the product is used in different power pressure, not the marked one, it will cause 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 10cm at least.)
-  The power outlet must be only for this product.  
 (Using various products simultaneously can cause a fire.)
-  Clean the power plug with a dry towel and connect it properly.  
 (Foreign substances or unsafe connection can cause a fire.)
-  Do not band the power cable harshly and do not make it to 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 code 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 code 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 causes an electric leakage accident and a corrosive 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 or ducts, cooling source.



Do not put inflammable substances near the product.  
 (It may cause a fire.)



### CAUTION



The product requires the distance of at least 10cm from the wall.



Install the unit at a flat surface and solid place.  
 (If the ground is not flat, it can cause an excessive vibration of the product.)



When you move the product, do not lay down to its side or reverse the head to bottom.  
 (It can cause a malfunction.)

## 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 the product for different purpose.  
 (It can cause malfunction or poor function. Consequently, you will get a wrong result.)



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.)

#### 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 place where you can't 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.

## FEATURES

- Optimized to use in an incubator
- Micro Stepping Motor to minimize vibration and noise
- LED Digital display for RPM of roller(Display for battery charging condition, optional)
- Auto-restart after power failure
- Alarm for the event of the error in belt and motor
- One-Touch Break Caster which can hold the axle and the wheel simultaneously
- Battery Back-up (Optional) which allow approximate 24 hours of operation in the event of power failure. (Such back-up time is depending on the charging condition of battery)
- Oil Lubricants free system for maintenance free

## SPECIFICATION

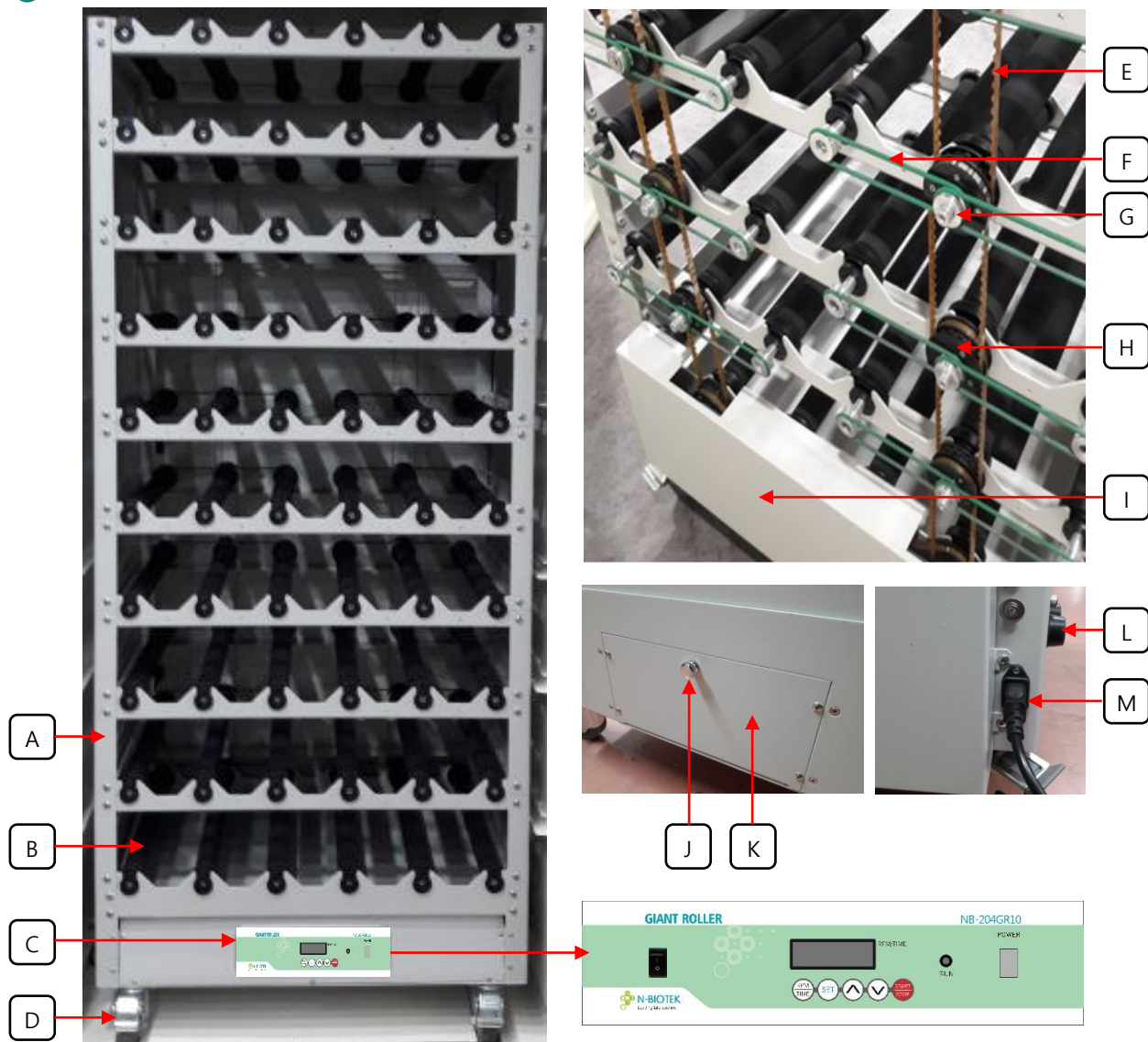
ITEMS	UNIT	NB-204GR3	NB-204GR10
<b>Speed</b>			
Range	rpm	0.5 rpm to 30.0 rpm (*based on 2Liter Bottle RPM)	
Resolution	rpm	0.1 rpm	
Increment	rpm	0.1 rpm	
<b>Time</b>			
Range	Hour/minutes	1Minute to 99Hours 59Minutes or continuous operation	
Accuracy	%	±1 %	
<b>Display</b>		5 Digit LED display	
<b>Motor</b>		Micro Stepping Motor	
<b>Maximum Bottle Loading Capacity (* 2Liter bottle)</b>	mm, ea	110 to 120mm, 30ea *Bottle Length below 250mm	110 to 120mm, 100ea *Bottle Length below 250mm
<b>Roller deck dimension</b>	mm	750(w) x 564(D)	
<b>Overall dimension</b>	Mm	756(W) x 625.5(D) x 642(H)	756(W) x 625.5(D) x 1799(H)
<b>Ambient Temperature</b>	℃	0 to 50℃	
<b>Ambient Humidity</b>	%RH	35 to 85%RH	
<b>Motor Control</b>		32 bit DSP PWM Drive	
<b>Motor Input Voltage</b>	Vdc	24vdc ±10%	
<b>Alarm Function</b>		Buzzer, Display	
<b>Power Supply</b>	V, Hz, W	AC90 to 264V, 50/60Hz, Max. 70W	AC90 to 264V, 50/60Hz, Max. 75W
<b>Weight</b>	kg	About 40kg or less	About 80kg or less

## CONFIGURATION



※ Picture of NB-204GR10 installed in incubator

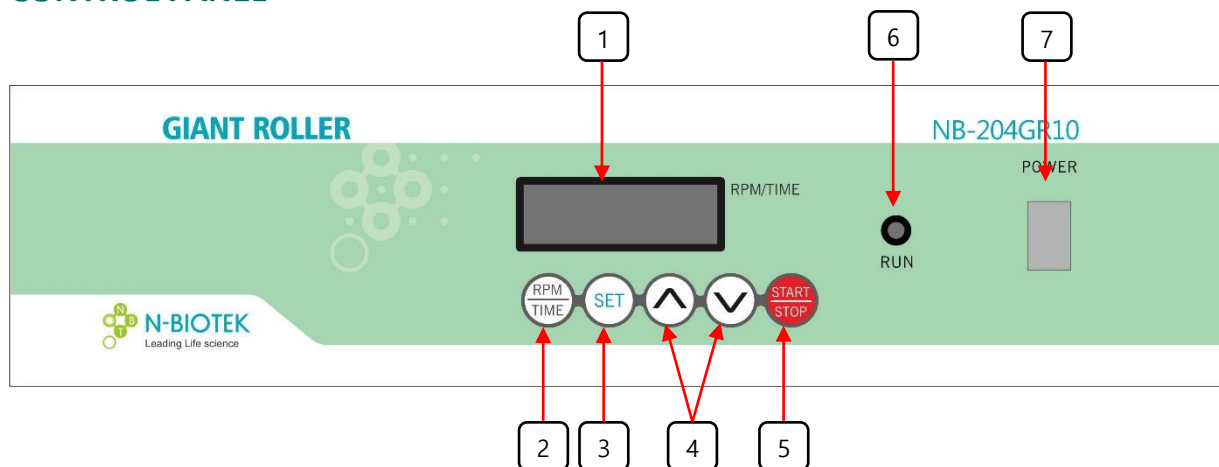
## ● CONFIGURATION



Classification	Name	Classification	Name
A	Roller Frame	H	Belt Pulley (Acetal)
B	Roller Shaft	I	Motor Drive Cover
C	Control Panel	K	Battery Tray <OPTIONAL>
D	Caster	J	Battery Tray Handle <OPTIONAL>
E	Timing Belt	L	Protection Rubber
F	Urethane Belt (round type)	M	AC Inlet
G	Belt Pulley (Aluminum)		

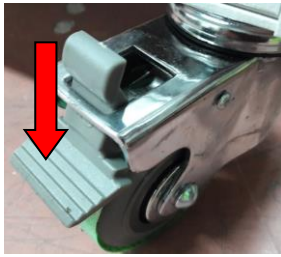


## ● CONTROL PANEL



No.	Classification	Description
1	RPM/TIME Display	Displays present RPM or TIME
2	RPM/TIME Button	Displays set RPM or set TIME // RPM ↔ TIME switching button
3	SET Button	To set RPM or TIME
4	UP & DOWN Button	To adjust RPM or TIME for setting
5	START/STOP Button	To start or stop the operation of roller
6	RUN LED	To check the operation of roller
7	POWER On/Off Switch	To supply power to the unit Power off completely shut down main power.

## MOBILITY AND IMMOBILIZATION



<To hold the unit>



<To move the unit>

As you can see the picture above, the caster wheel is installed under the unit.

Pushing the lock button downward hold both the axle and the wheel simultaneously and the unit will not move. On the contrary, pulling the lock button upward unlock the holding and the unit becomes able to move.

✗ Be sure not to move the unit by force when the caster is locked, otherwise it will damage the caster.

## OPERATION

### ➤ CONNECTING POWER

- ✓ Connect the power cable to AC Inlet located on backside of the unit.
- ✓ After connecting it properly, turn on the POWER switch. It is located on the control panel.  
(Recalling and operating with the previous settings after restarting by power failure)

### ➤ RPM and TIME SETTING

- ✓ RPM Setting Range: 0.5 ~ 30 RPM  
TIME Setting Range: 1 Minute ~ 99 Hour 59 Minutes
- ✓ RPM setting can be adjusted by UP & DOWN buttons.  
Adjustment is available when the roller is operating.  
(The revolution of bottle is the standard for RPM.)
- ✓ n \_ \_ \_ with RPM will be shown on the display in case of conditions listed below.
  - Turning on the power after turned off the unit without stopping the roller
  - Power failure during the operation
- ✓ RPM Setting
  - ① Press START/STOP button to stop the roller if it is in operation.
  - ② Press RPM/TIME button to have r \_ \_ \_ on the display (RPM mode).
  - ③ Press SET button and display r \_ \_ \_ will blink continually.
  - ④ Use UP & DOWN button to adjust and set the desired RPM value.

- ⑤ Press SET button after setting RPM is finished.  
(SET button: must be pressed to save the entered RPM set value)
- ⑥ Entered RPM value will be shown on the display after showing **r SAVE**.
- ⑦ Press START/STOP button and roller will operate with the set RPM.

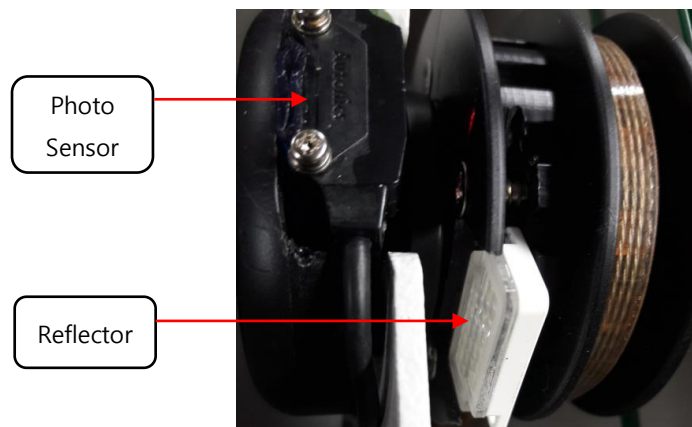
✓ **TIME Setting**

- ① Press START/STOP button to stop the roller if it is in operation.
- ② Press RPM/TIME button to have **t 00.00** on the display (TIME mode).
- ③ Press SET button and use UP & DOWN button to set the desired hour value at first.
- ④ Press SET button again and use UP & DOWN button to set the desired minute value.
- ⑤ Press SET button and entered TIME value will be shown on the display after showing **t SAVE**. (SET button: must be pressed to save the entered TIME set value)
- ⑥ Press START/STOP button to operate.  
The unit will stop its operation after the entered time and the display **—END—** will blink continually.

➤ **ALARM**

✓ **Belt Alarm (Beeping Sound)**

- ① Alarm will activate in 2 minutes, when it cannot detect the motion sensor which caused by belt broken or separation from the pulley.
- ② The motion sensor is located on top right side of the unit.
- ③ Alarm delay time: 11 minutes (factory settings)  
(Alarm will be activated when it cannot detect the photo sensor for 11 minutes.)
- ④ To turn off alarm: Press 'Stop' button.
- ⑤ Inspection of the unit's condition is required once the alarm is activated.  
(Motor condition & Belt condition)



## ➤ FACTORY SETTINGS

- ✓ Factory settings is optimized for the use, therefore, it is not recommended to change the set value arbitrarily. Changing the set value may cause the faulty result for further experiments.
- ✓ To enter the Factory Setting, Press 'SET' button + POWER switch on.
- ✓ In the Factory Settings mode, press SET button to bring up the menu gradually.
- ✓ In each step, use UP & DOWN button to set the value.

Display	Function	Range	Description
V.	Max RPM Setting	0.5 – 30 RPM	Only available for Max RPM value • Factory settings: 30.0 RPM
G.	Gear Ratio Setting	1.000 – 5.000	The ratio between roller shaft and bottle circumference • Factory settings: 3.000
S.	Stabilizing Time Setting	1 – 250 Sec	Standard time to meet the condition for alarm to be armed • Factory settings: 180 Sec
r.	Alarm Range Setting	0.5 – 1.0 RPM	• Factory settings: 0.5 RPM
t.	Alarm On/Off Time Setting	1 – 250 Sec	The delay time of alarm after meeting its condition to activate • Factory settings: 60 Sec
d.	Belt Alarm Detecting Time Setting	1 – 250 Min	• Factory settings: 11 Minutes

## WARRANTY

Thank you for purchasing our Giant Roller.

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

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

## WARRANTY

<b>ITEM</b>	GIANT ROLLER	<b>MODEL</b>	NB-204GR(3/10)
<b>DATE OF INSTALLATION</b>	MM-DD-YEAR	<b>SUPPLIER</b>	
<b>SERIAL No.</b>		<b>PERIOD</b>	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 N-BIOTEK 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 N-BIOTEK, 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.**