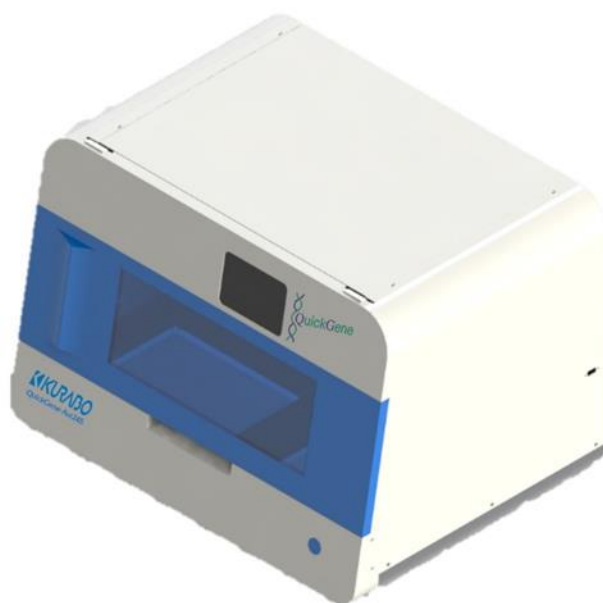


## Operation Manual

Automated Nucleic Acid Isolation Device

# QuickGene-Auto12S

# QuickGene-Auto24S





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# Introduction

Thank you very much for purchasing our Automated Nucleic Acid Isolation Device QuickGene-Auto12S / QuickGene-Auto24S (here after referred to as “QG-Auto12S/24S”). This document contains important information about correct and safe use of the functions of this device. Before using, be sure to read this document. For quick reference, please keep this document within easy reach of this equipment.

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## Application of Infectious Waste Rules

If a potentially infectious sample is to be disposed of after use, it should be treated with incineration, melting, sterilization, disinfection, etc. in accordance with the rules at your facility (institute) or relevant laws because it is classified as infectious industrial waste. If disposal is outsourced, use a licensed contractor as a waste disposer of industrial waste subject to special control together with a manifest of industrial waste subject to special control.



Biohazard Symbol

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### ■Disclaimer

- **The contents of this document are subject to change without prior notification.**
- **Our company shall not be liable for:**
  - Any violation of patent right of a third party or other rights through use of data described in this document.
  - Any failure or damage caused by installation, relocation, remodeling, maintenance or repair carried out by any party other than our company or other than a contractor designated by our company
  - Any failure or damage of our product caused by a product delivered by other than our company
  - Any failure or damage caused by remodeling, maintenance, repair, etc. using any parts other than genuine parts designated by our company
  - Any failure or damage resulting from non-compliance with precautions and operation procedures described in this document
  - Any failure or damage due to deviation in surrounding conditions from the conditions of use of this system, such as power source or installation environment
  - Any failure or damage caused by fire or natural disasters such as earthquake, flood, lightning, etc.
- **Unauthorized reproduction in whole or in part of the contents of this document is prohibited.**

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# How to Read This Document

## Warning Labels

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The precautions required for the safe use of this system are described in this document.

Be sure to read the precautions and thoroughly understand the contents before using this system.

### SAFETY SYMBOLS:

**"Warning" indicates the risk of death or serious injury if not avoided.**



**Warning:** "Warning" indicates a risk of death or serious injury.



**Biohazard:** "Biohazard" indicates a risk of infection.



**Caution:** "Caution" indicates a risk of lighter or moderate injury, or property damage.

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**Important:** "Important" indicates critical or prohibited actions.

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**Note:** "Note" indicates precautions, instructions to abide by, supplemental explanations, etc.

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## Intended Use

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QuickGene-Auto12S/24S which collocate with related reagent perform automated isolation of nucleic acid from biological sample. The sample derived from human beings could be different kind of sample such as blood, tissue, plasma, interstitial fluid...., which need to be well pretreatment then performing in this system.

Nucleic acids (DNA, RNA, viral nucleic acid) isolated from QG-Auto12S/24S can't be diagnosis, prevention, or treatment of a disease purpose directly. However, nucleic acids can be a material for downstream analysis, for example, PCR or NGS.

The person who use this system should be well training and just for professional use only.

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# Precautions for Use

This manual is designed to assist you with the operation of the QG-Auto12S/24S system in advance. Read it thoroughly before using the equipment or beginning any maintenance on it. These WARNINGS and CAUTIONS are intended to protect you and other persons from injuries and damages. Ignoring the following notations may lead to fire or electric shock. To ensure safety operation, please follow them carefully.

## Symbol

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Please check all contents carrying this symbol.

## Device

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### Warning:

- **Make sure you get the power cable that meets your country's standard, in case of doubt, contact your local distributor.**
- **Make sure to connect to a power outlet with a grounding terminal.**
- **Do not handle the power plug with wet hands.**
- **Do not use with a voltage other than the indicated voltage, and avoid branch connections or extension cords.**
- **Do not use with a damaged power plug or a loose socket.**
- **If there is dust on the prongs of the power plug or on the plug socket, remove it with a dry cloth.**
- **When you disconnect the plug from the outlet, be sure to hold the power plug itself. Do not pull the power cable.**
- **For maintenance, disconnect the power plug from the outlet.**
- **Do not pour any liquid on or in the device.**
- **Do not place any objects containing liquid on the device. Doing so may cause a device failure, fire, or electric shock.**
- **In the event the device overheats, starts to smoke or smells abnormal, immediately unplug the power cable.**
- **Do not touch the power plug when thunder is heard or lightning is seen.**
- **When the current-limiting fuse is broken, leakage is possible. Do not use this equipment.**



**Caution:**

- Never attempt to alter QG-Auto12S/24S without the manufacturer's permission. Doing so may cause fire or electric shock.
- Do not place or drop objects on the device. Blunt force impact to the device may cause failure or malfunction of QG-Auto12S/24S.
- Liquid spills inside the device should be wiped up immediately as potential damage to electrical systems can occur.
- Do not ride above the device. Falling and injury may occur.
- Wear protective gloves when replacing consumables.
- If ethyl alcohol is spilled, promptly remove power plug from outlet.
- Repairs to QG-Auto12S/24S should only be performed by such agencies as are specifically authorized by KURABO Industries., Ltd.
- Only original KURABO Industries., Ltd. replacement parts should be used.



**Instruction for handling hazardous substances**

When handling or disposing of infectious materials, follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE).

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## QuickGene-Auto12S/QuickGene-Auto24S Kit

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(Hereafter, the QG-Auto12S/24S Kit is referred to as a "dedicated kit" in this document.)



- Caution:**
- Refer to the procedures for use of the dedicated kit in the handbook attached to the kit .
  - Handle the reagents in the kit in accordance with the safety precautions for handling and use.
  - Use in a laboratory or work space suitable for isolation work.

QuickGene-Auto12S/24S Kit List	
Blood DNA Reagent Kit	QuickGene-AutoS DNA Blood kit (AS-DB)
Tissue DNA Reagent Kit	QuickGene-AutoS DNA Tissue kit (AS-DT)
Plasmid DNA Reagent Kit	QuickGene-AutoS Plasmid kit (AS-PL)
Blood RNA Reagent Kit	QuickGene-AutoS RNA Blood kit (AS-RB)
Tissue RNA Reagent Kit	QuickGene-AutoS RNA Tissue kit (AS-RT)
Cultured Cell RNA Reagent Kit	QuickGene-AutoS RNA Cultured Cell kit (AS-RC)

**NB:** These products are not included in this system package. Please purchase separately.

## Reagents Used for Other than Dedicated Kits

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- Caution:**
- For reagents used for other than a dedicated kit, the work should be carried out in accordance with the safety precautions for handling and use of each reagent.
  - Use in a laboratory or work space suitable for isolation work. Some reagents must be prepared in a draft chamber.

## Cleaning Agents for Cleaning or Washing

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- Caution:**
- Work with agents for cleaning or washing the main unit and its accessories should be conducted in accordance with the safety precautions for handling and use of each cleaning agent.



- Biohazard:**
- Ethyl alcohol is an inflammable substance. Do not use in the proximity of open fire.
  - Wear proper gloves, mask and protective goggles for cleaning work.

## Samples

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- Biohazard:**
- Use proper gloves, mask and protective goggles for handling samples with a risk of infection.

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## Ultraviolet Light (UV) Irradiating Function

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**Warning:**

Operation of the UV irradiating function of this system will cause ultraviolet (small amount) leakage from the front door and its peripheral part, joints with exteriors, etc. Exposure to ultraviolet light may cause damage such as eye or skin irritation. Avoid exposure of skin or eyes to ultraviolet light.

## Warning Labels

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Warning, caution, instruction and obligation labels are affixed to this system.



**: Wear protective equipment**

QG-Auto12S/24S may become contaminated with infectious substances, etc. When inserting your hands into the device, be sure to wear protective gloves.



**: Read operation manual**

Read and understand operation manual before using this equipment.



**: Biohazard Risk Label**

This label indicates a biohazard risk.



**Warning: Hot Surface**

Risk of burns: do not touch immediately after operation.



**Warning: hands pinching**

Keep hands away.



**Warning: Hazardous voltage**

Risk of electrical shock.





**Warning: UV**

Risk of damage to eyes and skin.

## Markings

Mark	Description	Mark	Description
	Manufacturer information		Consult instructions for use
SN	Serial number		European Authorized Representative
	Do not dispose of this product as unsorted municipal waste		Humidity limitation
	Caution! Consult accompanying documents		Temperature limitation
	Recyclable materials		

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# Restrictions on Use

This section indicates the restrictions on use of QG-Auto12S/24S and QuickGene Consumables.

- **No liability is assumed for the results regardless of the purpose of use.**
- **Validation of performance on samples shall be based on the judgment and responsibility of the user.**

When using this device, please thoroughly read this document and abide by the safety rules of your facility.

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# Contents

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## **1 Installation Procedures** **p. 1**

---

- 1.1 Conditions for Installation, Operating Environment
- 1.2 How to Open the Package
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- 2.3 Preparation for Operation
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# INDEX

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## **1 Installation Procedures**

**1**

The device installation procedures are explained.

## **2 How to Operate**

**2**

The isolation operation is explained.

## **3 Cleaning and Maintenance**

**3**

The procedures for cleaning and maintenance are explained.

## **4 Before Concluding as a Failure**

**4**

The handling procedures when you consider a failure has occurred are explained.



# 1 Installation Procedures

The installation procedures for this device are explained below.

1

## 1.1 Conditions for Installation, Operating Environment

The conditions for system installation and the operating environment are explained here.

### ■ Installation location



#### Warning

- **To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.**
  - Install QG-Auto12S/24S on a clean, dry, sturdy surface within 1.2 M of an electrical outlet, and clearance around the instrument base at all times to ensure proper ventilation.
  - A location that is flat and stable, with no vibration.
  - A location away from direct sunlight (Block the sunlight by closing curtains or blinds as necessary).
  - A location which is well-ventilated and not dusty.
  - A location with minimal sudden temperature fluctuation (Warming a cold room suddenly or moving the device from a room with low temperature to a warm room may cause condensation inside the device, resulting in sub-standard performance.)
  - A location where the temperature and humidity are kept within the specified range (far from water faucets, water heaters, humidifiers, air-conditioners and heaters)
  - A location where strong magnetism (motors, transformers, televisions, speakers, magnets, etc.) is in proximity (Approaching a magnetic source will cause malfunction.)



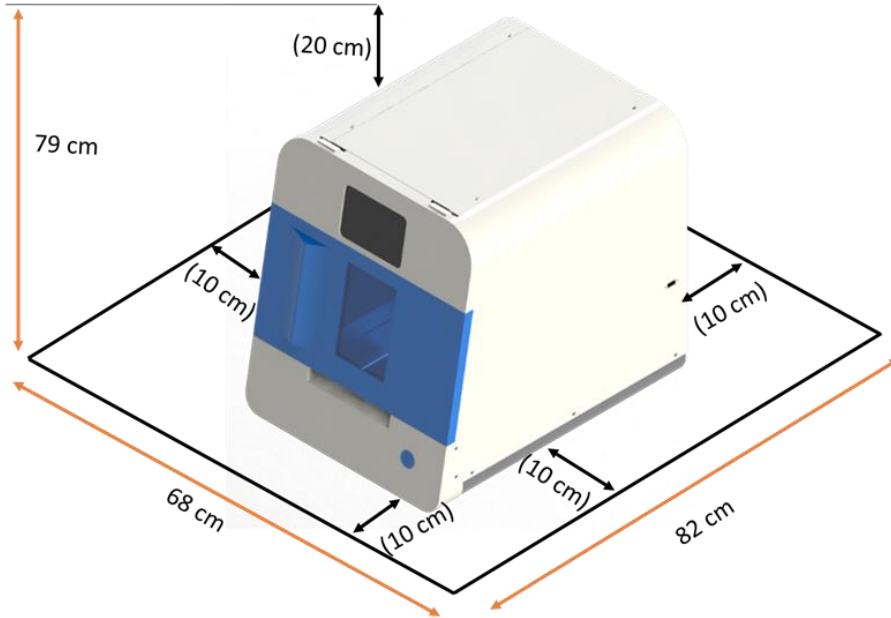
#### Caution:

- **Do not install this device in a location with intense vibration or at an unstable incline. This may cause injury or failure.**
- **Do not install this device in a location exposed to direct sunlight or in the proximity of a heating or cooling appliance. This may cause a shortened lifetime or failure.**

## ■ Installation location of QuickGene-Auto12S

Please install this device in an indoor location as shown below for normal, safe use.

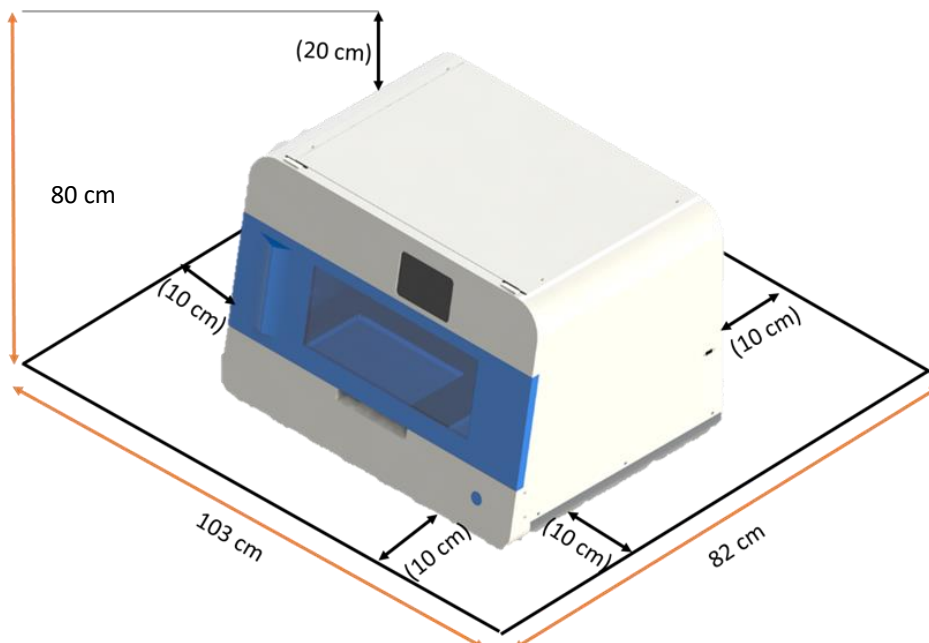
**Required footprint: Width  $\geq 68$  cm  $\times$  Depth  $\geq 82$  cm  $\times$  Height  $\geq 79$  cm**



## ■ Installation location of QuickGene-Auto24S

Please install this device in an indoor location as shown below for normal, safe use.

**Required footprint: Width  $\geq 103$  cm  $\times$  Depth  $\geq 82$  cm  $\times$  Height  $\geq 80$  cm**





### ■ Specifications

Item	QuickGene-Auto12S	QuickGene-Auto24S
Dimension (W x D x H)	480 x 620 x 590 mm	830 x 620 x 590 mm
Weight	55 kg	80 kg
Throughput	1-12 sample/run	1-24 sample/run
Power Supply	100-240V~±10%, 50/60 Hz	
Mainboard	PCB	
UV lamp	UV-C	
Light source	LED white light	
Heatingblock	25-60°C	
User's interface	7" TFT LCD touch screen (800*400)	

### ■ Operating environment

Item	Specification
Temperature	15-30°C
Humidity	30-80 % relative humidity, non-condensing
Input power	100-240 V~/50-60Hz
Overvoltage category definition	Transient overvoltage category II
Table tolerance weight	QuickGene-Auto12S: $\geq 55$ kg QuickGene-Auto24S: $\geq 80$ kg

### ■ Operating parameters

Item	Specification
Processing time	20-50 mins (Depend on protocol)
Sample volume	200 $\mu$ l (Can be customized)
Elution volume	50 $\mu$ l, 100 $\mu$ l, 150 $\mu$ l, 200 $\mu$ l

## 1.2 How to Open the Package



**Caution:** Don't carry the equipment by alone.  
2 or more people are needed for carrying QuickGene-Auto12S.  
4 or more people are needed for carrying QuickGene-Auto24S.

1

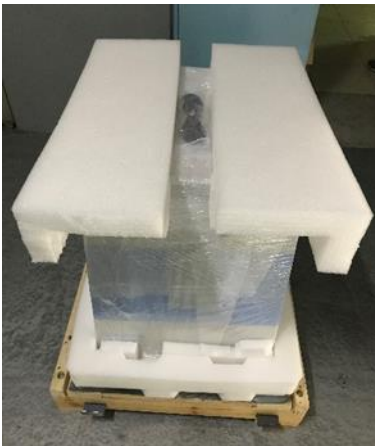
Follow the instructions to unpack the device.

### 1.2.1 Remove the outer carton, four foam pieces, and take out the device.



Wooden carton dimension

- QuickGene-Auto12S: 71 x 89 x 84 cm
- QuickGene-Auto24S: 105 x 95 x 93 cm

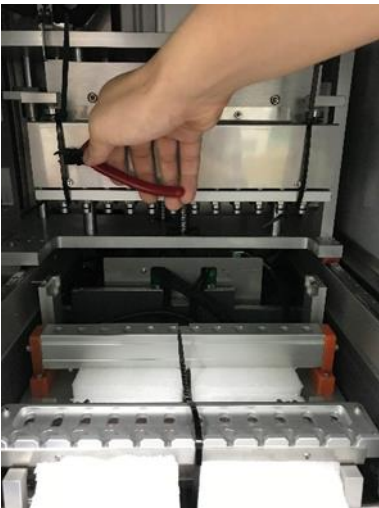


- 1.2.2 Remove the foam between the Reagent holder and syringe head from inside the instrument and cut the cable tie of Reagent holder.

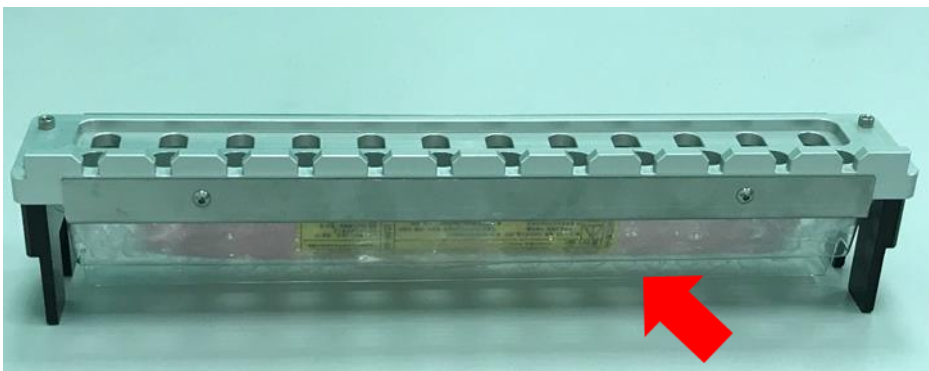


1

- 1.2.3 Remove the foam between the Y2 axis and worktable from inside the instrument and cut the cable tie of Collection holder.



- 1.2.4 Take out the Collection holder, remove the wing screw and take out the UV lamp, then install it.



## 1 Installation Procedures

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### 1.2.5 Plug in the Power Cable and turn on the rear power switch.



### 1.2.6 Turn on the main switch (Orange).

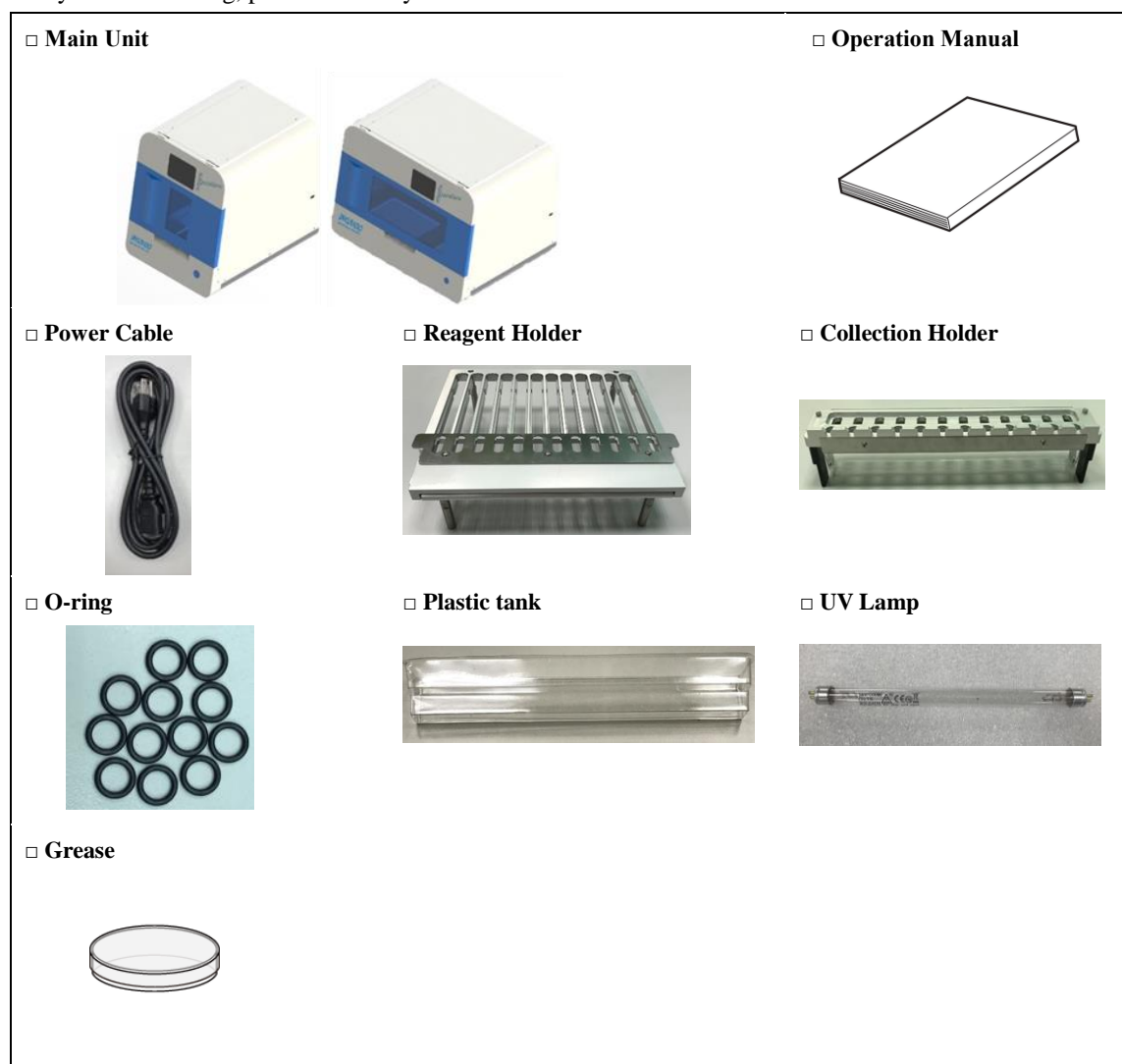


**Warning:** Do not obstruct the mains plug or position the equipment where the connection to the mains line can be accidentally disconnected.

## 1.3 Checking of Packed Contents

Please check the following contents are included in the wooden carton before using the device.

If any item is missing, please contact your distributor.



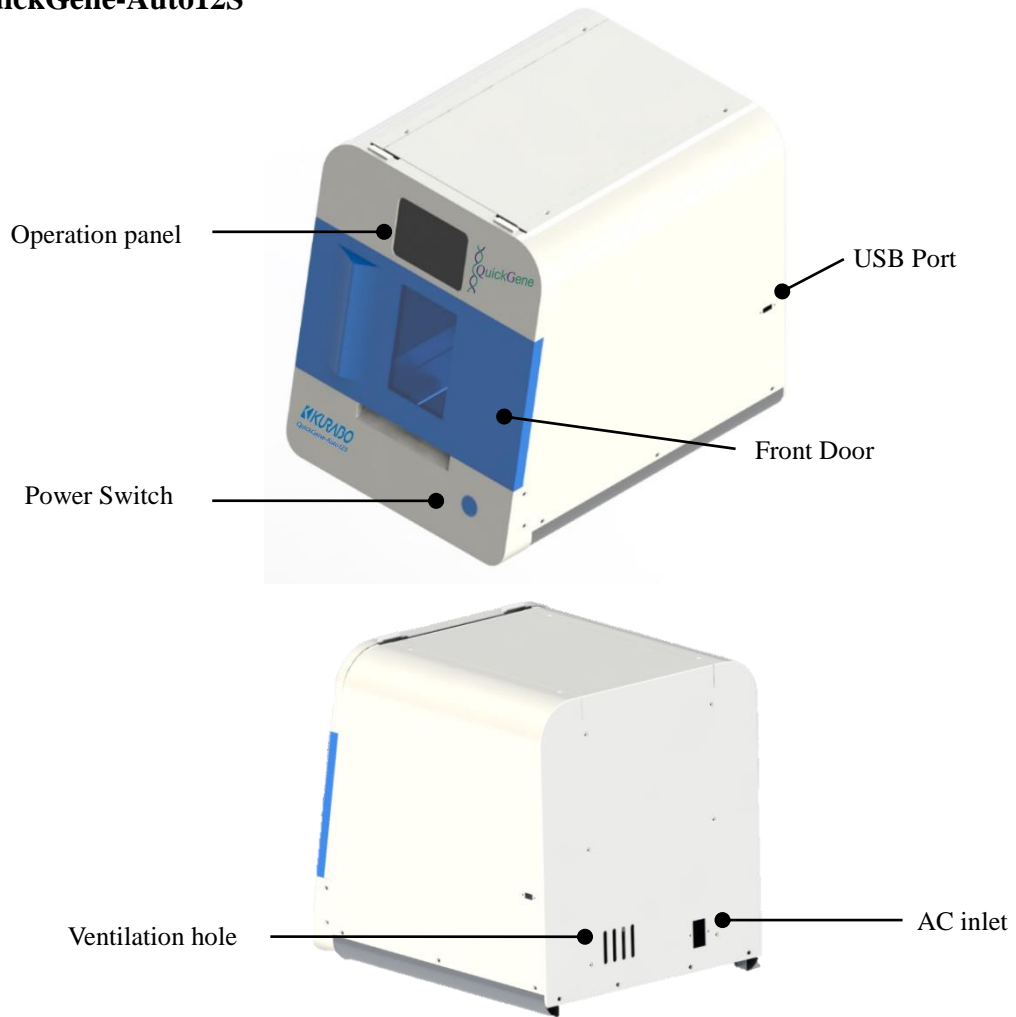
Item	QuickGene-Auto12S	QuickGene-Auto24S
Main Unit	1	1
Operation Manual	1	1
Power Cable	1	1
Reagent Holder	1	2
Collection Holder	1	2
O-Ring	12	24
Plastic Tank	3	6
UV lamp	1	1
Grease	1	1

## 1.4 Device Overview

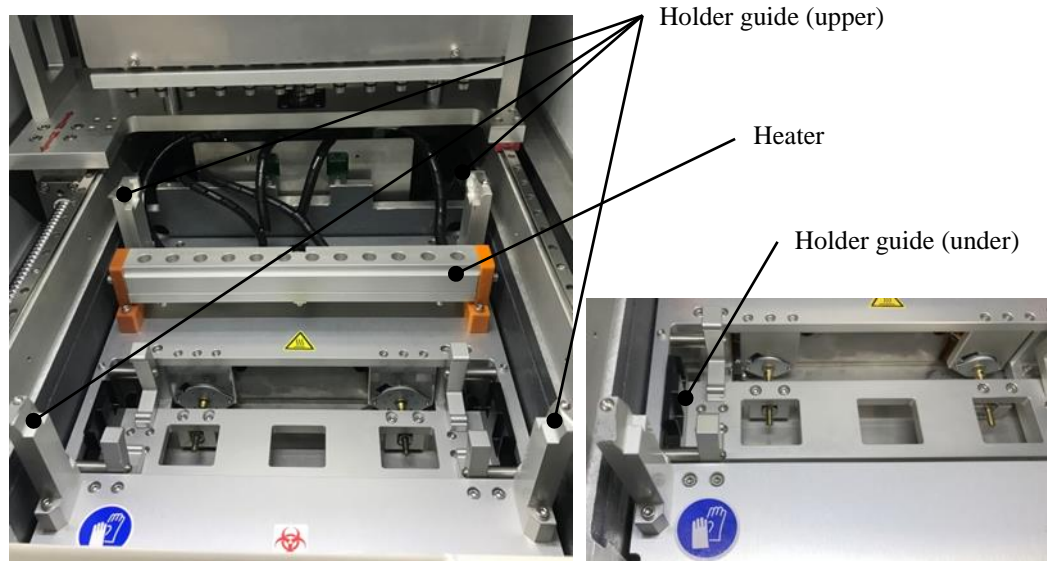
The names of parts and their functions are explained below.

### ■ QuickGene-Auto12S

1

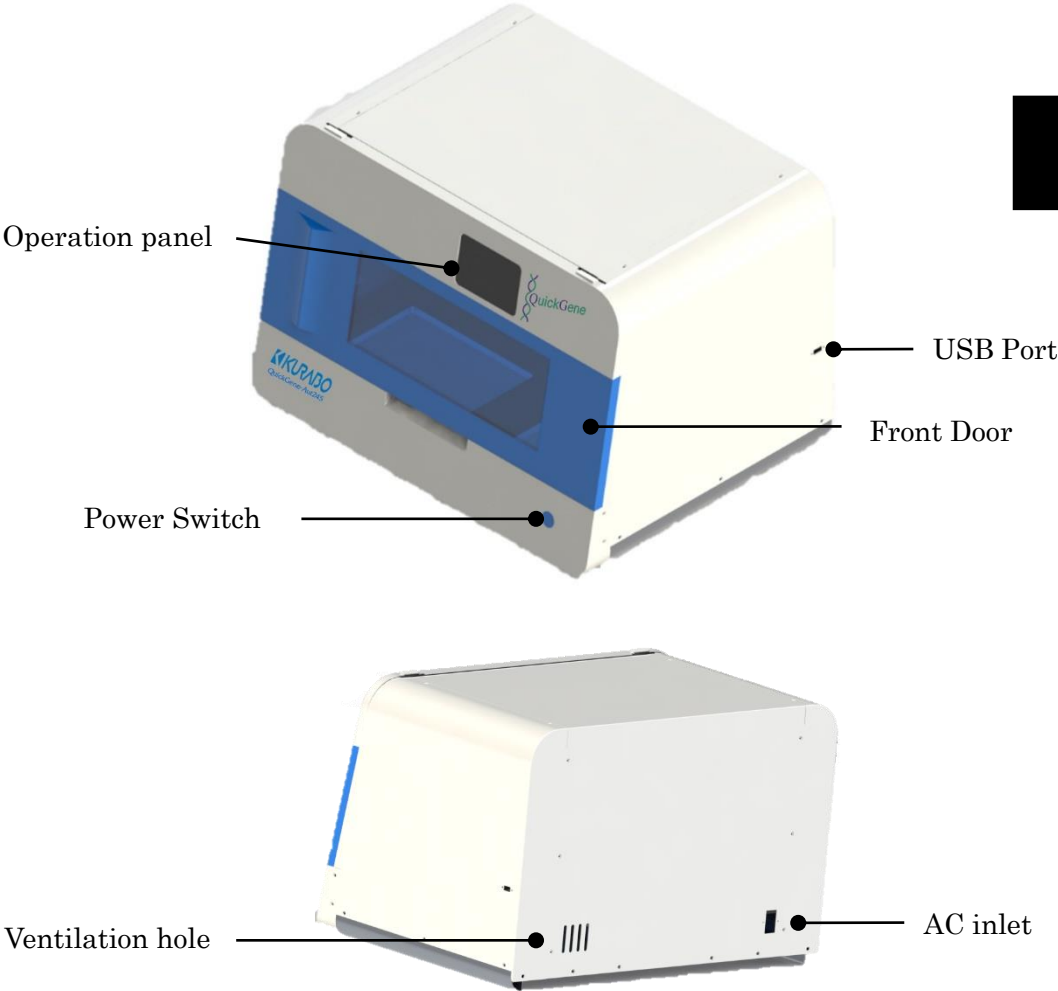


### ■ Interior View of QuickGene-Auto12S

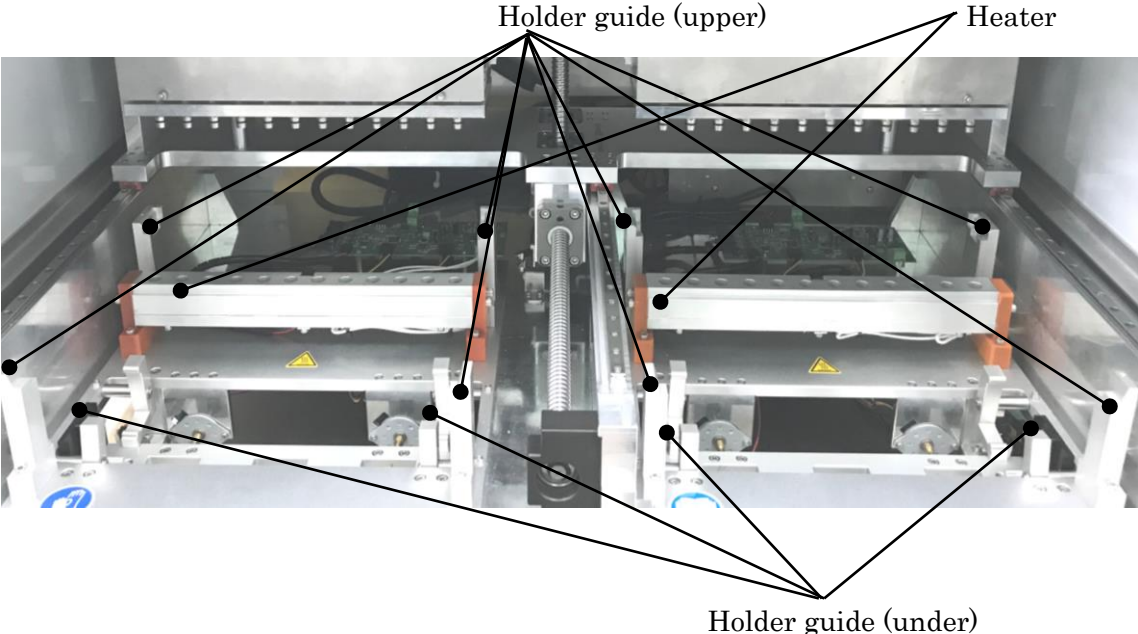


■ QuickGene-Auto24S

1



■ Interior view of QuickGene-Auto24S



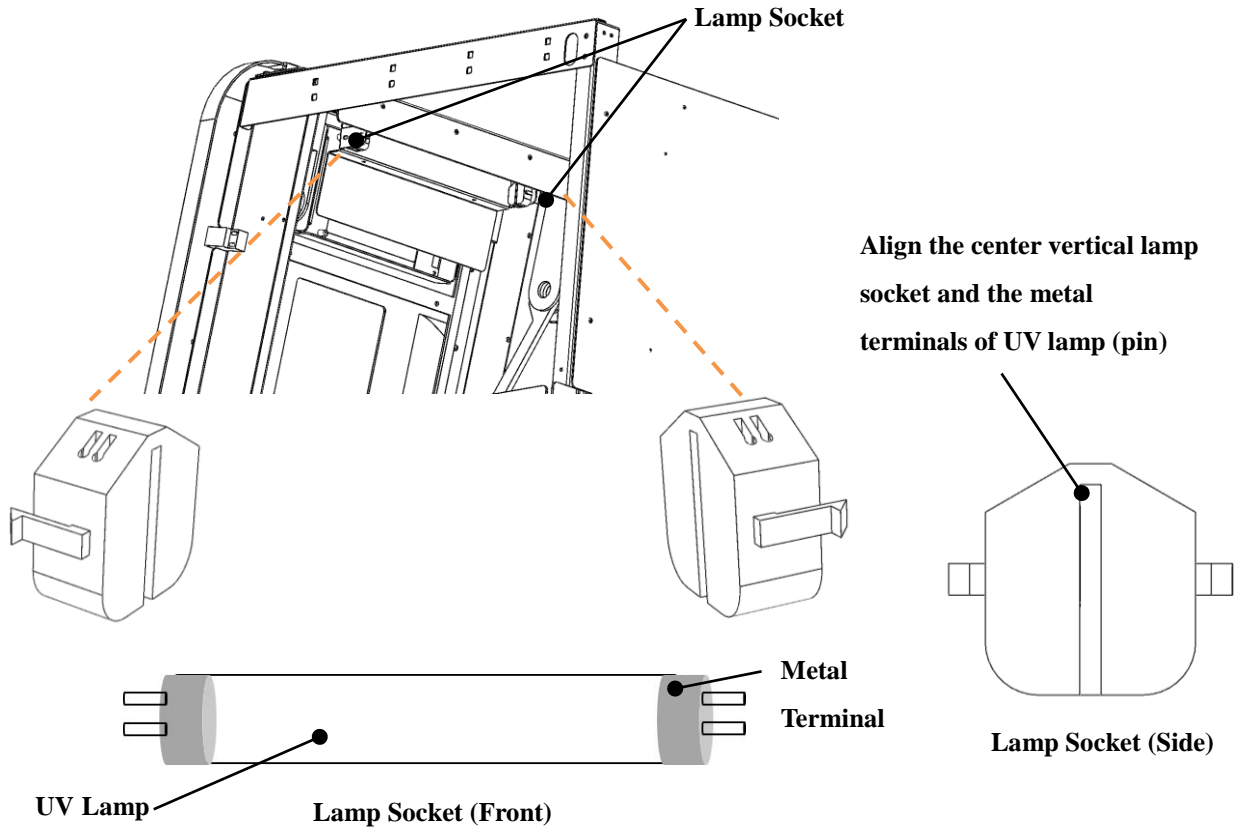
## 1.6 Mounting of UV Lamp

The mounting procedures for the UV lamp are explained below.

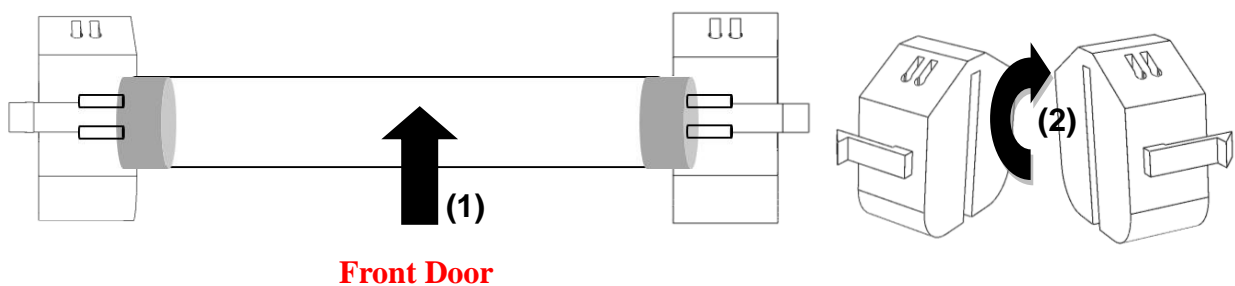
Mount the UV lamp (1 pc) included in the package onto the lamp socket in the device.

1

- Align the UV lamp metal terminals and the lamp socket inserting position.



- Insert the UV lamp and amount on the lamp socket



(1) Insert the UV lamp along the vertical groove of the lamp socket (to the end).

(2) Turn the UV lamp clockwise 90° to mount on the lamp socket. (Turn until a clicking sound is heard.)

**NB:** To remove the UV lamp, follow the reverse order of above.



## 2 How to Operate

The procedures for power ON and the isolating operation with normal protocol are explained below.



**Biohazard:**

**Wear appropriate gloves, mask, and protective goggles for isolation work with risk of infection.**

**Furthermore, after once conducting isolation work with risk of infection, wear proper gloves and mask if contacting the system because the system may be contaminated.**

**2**

**Important: Wear proper gloves and mask for isolation work according to the work contents. Take care not to cause contamination with sweat or sputum from preparation of sample until completion of isolation work.**

### 2.1 Confirmation of Articles to be Prepared

Explanation regarding confirmation of prepared articles before conducting isolation work.

■ **QuickGene-Auto12S or QuickGene-Auto24S Main Unit and Accessories**

Refer to "1.4 Checking of Packed Contents" and confirm that all are included.

■ **Other articles to prepare**

The following articles shall be prepared.

NB: They are not included in the package of this system but must be separately prepared.

- ◆ **Specific kits for QuickGene-Auto12S and QuickGene-Auto24S for 48 Specimens/1 Kit**

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**Note:** Please select the desired kits in accordance with your experiment.

---

- ◆ **1.5 mL or 2.0 mL Micro Tubes as DNA/RNA collection tubes**
- ◆ **2.0 mL Micro Tubes as sample tubes**
- ◆ **Protective Gloves**
- ◆ **Safety Goggles**
- ◆ **Others (Please refer to the kit handbook and prepare all articles.)**

## 2.2 Preparation of Reagents

Explanation of reagent preparation before conducting isolating work

**Note:** Use reagents within their expiration dates.

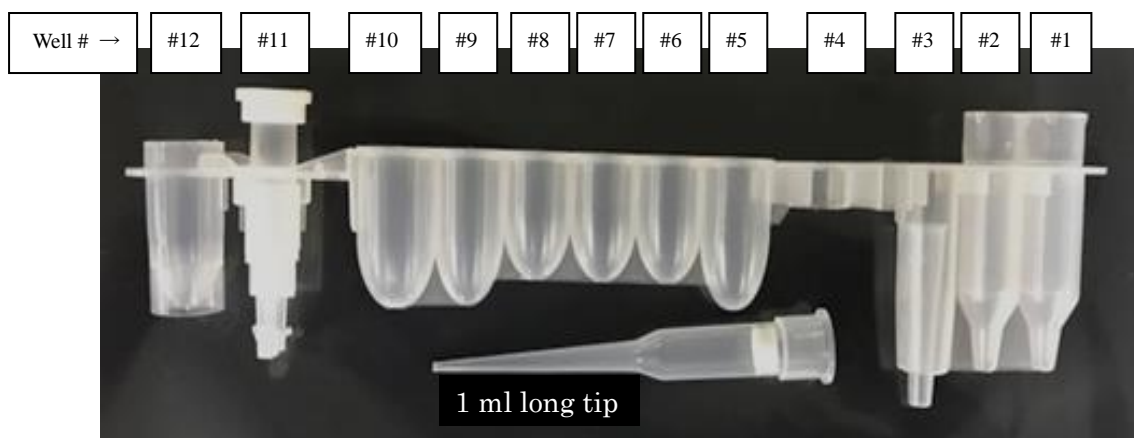
If an expired reagent is used, the expected yield and purity may not be attained.

The expiry date is indicated on the outer box of the reagent kit.

# 2

### ■ Reagent strips

QuickGene-AutoS kits include reagent strips.



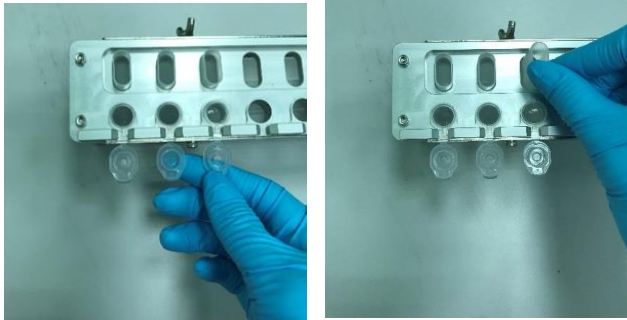
Following things are included each wells of reagent strips;

- #1, #2: Short tip
- #3 : Tip pack (need to be set 1ml long tip after setting reagent strip into the Reagent holder)
- #4 : Nothing (need to be set sample tube before starting operation)
- #5-10: Reagents
- #11 : Cartridge with Adopter
- #12 : Elution Buffer

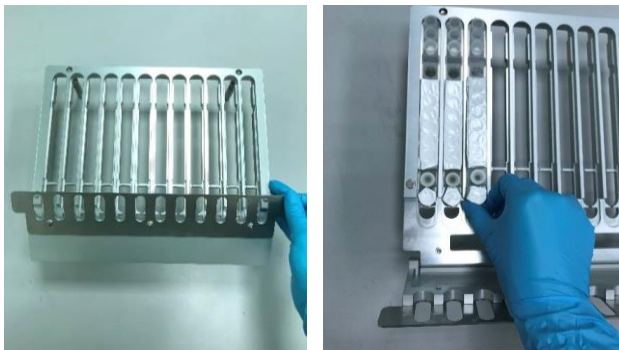
### ■ Preparation of Reagents

Please refer to the Handbook including in the dedicated kits.

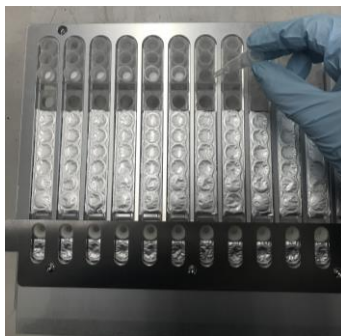
## 2.3 Preparation for Operation



- (1) Put the waste tube and elution tube in the Collection holder.



- (2) Open the lid of Reagent holder and put the strip into the holder.



- (3) Set 1 ml long tip at the #3 of reagent strips.

---

**Note:** Confirm tip packs is correctly set before setting 1 ml long tip.

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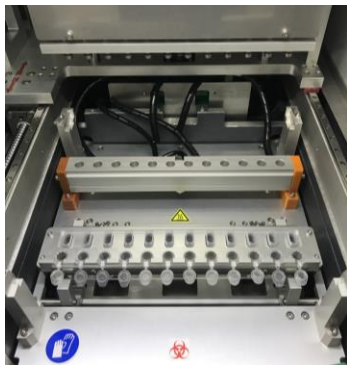
- (4) Check adaptors are correctly set on the cartridges and close the lid.

2



**(5) Open the front door of the device.**

Please hold the bottom of the front door and lift it up. Then the door will be slide up on the device.



**(6) Put the collection holder into the device.**

---

**Note:** The collection holder need to be set into the holder guide (under).

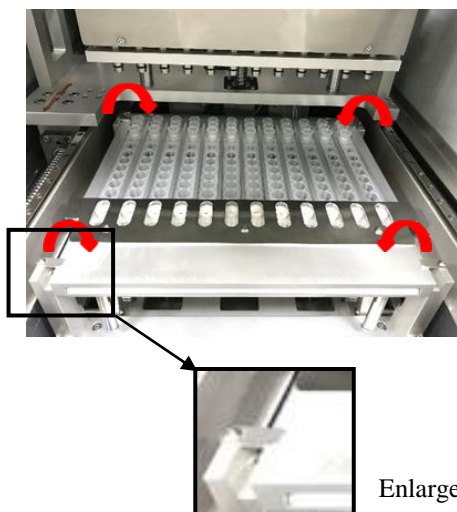
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**Biohazard:** During the heating block is hot (about 50 ° C), please be careful of getting burn due to touch on the heating block.



**Caution:** Be careful not to hit your head against the front door when setting the holder to the equipment.



**(7) Put the Reagent holder and lock it by four stoppers (front and back)**

---

**Note:** The cartridges should be set at the front side of the device.

---

Enlarged view of a stopper.



- (8) Prepare the sample and put it into the bottom of Sample Tube, then put it into #4 of reagent strip. Press it to the end.

2



**Warning:** Please refer to the kit handbook for sample preparation.

If you set inappropriate sample, cartridges may clog.

## 2.4 Operation of DNA/RNA Isolation

### ■ Normalized protocol operation

2



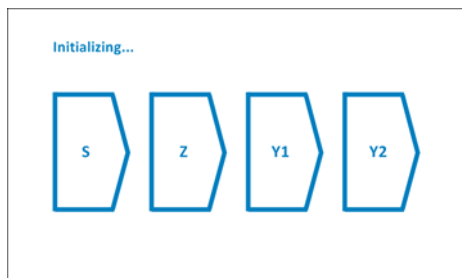
- (1) **Confirm that the front doors are closed, and press the power switch.**

Wait until the title is displayed.



- (2) **The title is showed up.**

Wait until the initialization screen is displayed.



- (3) **Initializing screen is showed up.**

The device proceed through a self-check and move to the home position about all moving parts.

When the heater temperature reached to 25 °C, the touch panel shows the Home screen.

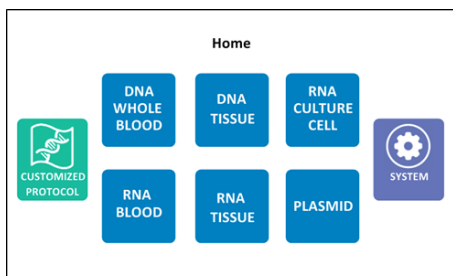
Each parts means as follows;

S: Cylinder operation (vertical movement)

Z: Dispenser operation (vertical movement)

Y1: Dispense unit operation (back and forth movement)

Y2: Switching operation



- (4) At the Home screen, select the Normalized protocol (blue), Customized protocol (green) or System (purple).

Each means as follows;

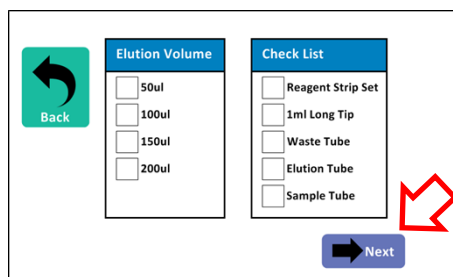
Protocol (blue): DNA WHOLE BLOOD  
DNA TISSUE  
RNA CULTURE CELL  
RNA BLOOD  
RNA TISSUE  
PLASMID

CUSTOMIZED PROTOCOL (green): ISOLATE A-E

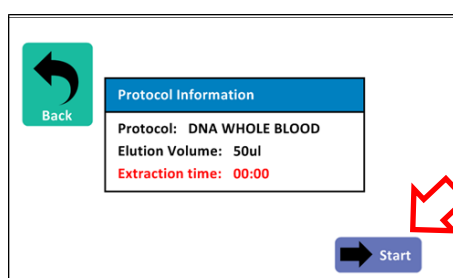
\*Additional protocol

SYSTEM (purple): Information

2



- (5) Choose the elution volume, and make sure all the accessories has been putted in the system. Confirm whether all consumables are correctly set and complete the check list then Next button will show up.



- (6) Check the protocol information is correct, then press the Start button to proceed the isolation. Then processing will be started.



**Warning:** During the operation please close the door.

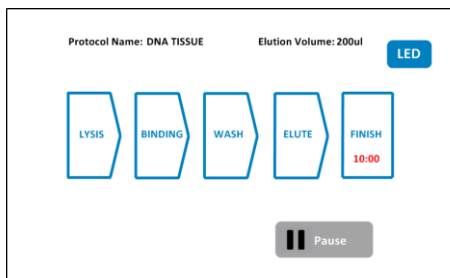
If door is opened, since a warning page is displayed, please close the door and press “continue” to go on the isolation. Or if you want to stop protocol, please press “terminate”.

2

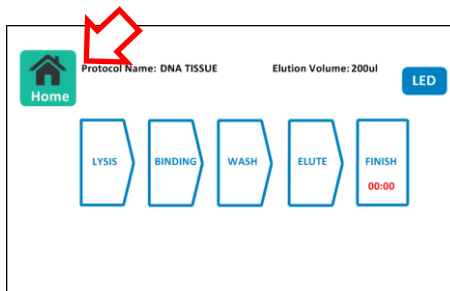


When you select “Yes”, the operation will be terminated and the screen will go back to the Home screen.

When you select “No”, the operation will be continued and the screen will be returned to the previous one.



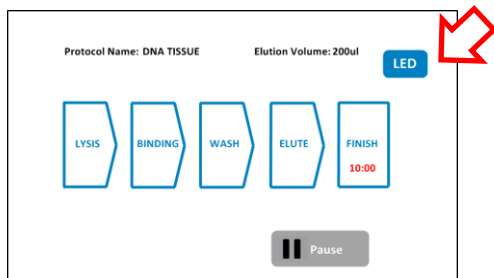
(7) During the running step, the touch panel show the processing and remaining time.



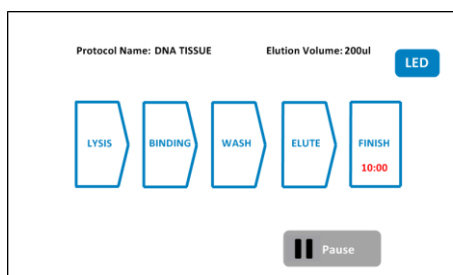
(8) After finishing the protocol, the beeper will call, press Home button return to Home screen, then start to next protocol.



## ■ Additional function during the processing.

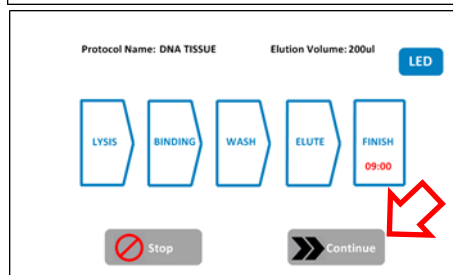


- You can turn “ON” LED lamp by pressing the LED button (upper right corner).



- You can stop the processing at the middle of the protocol if you press the Pause button.

When you press the Pause button, you can select “Stop” or “Continue”.



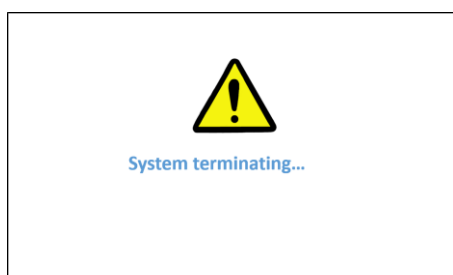
If you press the Continue button, the device will continue the running. If you press the Stop button, warning page will show up.



At this warning page;

When you press No, the device will continue the protocol and the touch panel will go back to running screen.

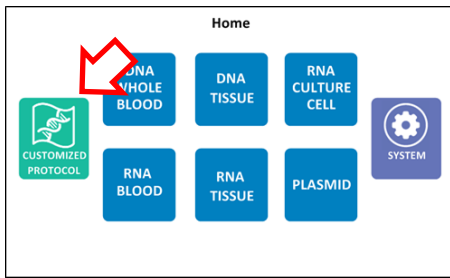
When you press Yes, the protocol will be finished.



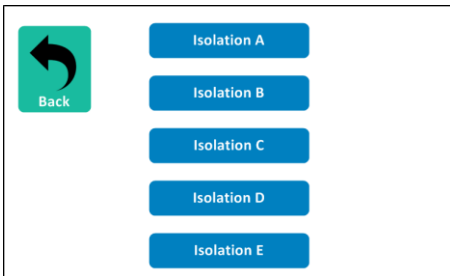
After pressing Yes, the touch panel show “System terminating”. Wait until the panel go back to Home screen.

■ How to operate the Customized protocol

2



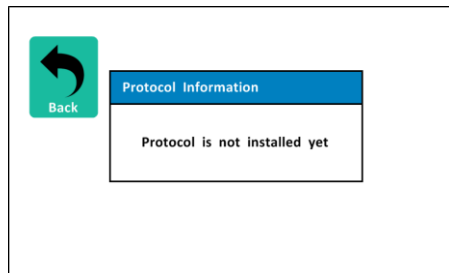
(1) Press the CUSTOMIZED PROTOCOL



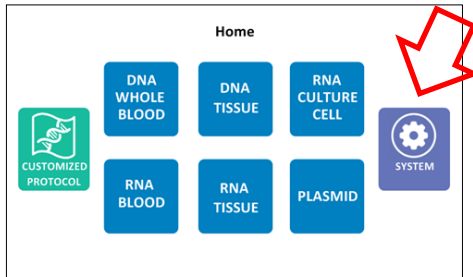
(2) Choose Protocol

Refer to the “Normalized protocol” operation procedure.

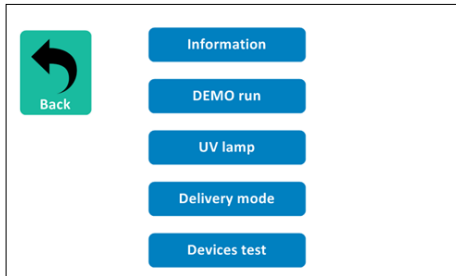
**Note:** When the protocol is not installed, the following page will be showed up.  
If you need customized protocol, please contact to your distributor.



## ■ How to use the System (purple)



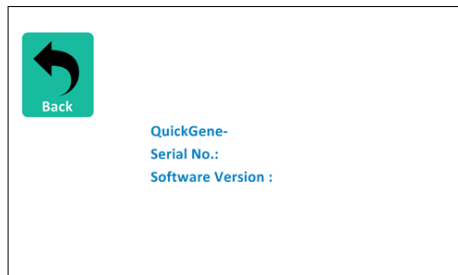
(1) Press the **SYSTEM**



(2) Operation menu will be showed up.

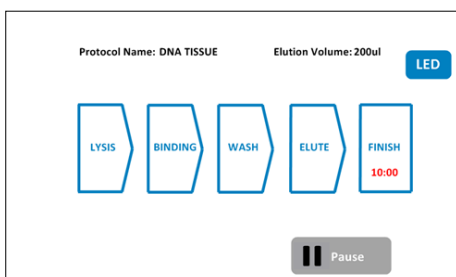
2

### ➤ Information



You can check Model name, serial number and software version will be showed up.

### ➤ DEMO run



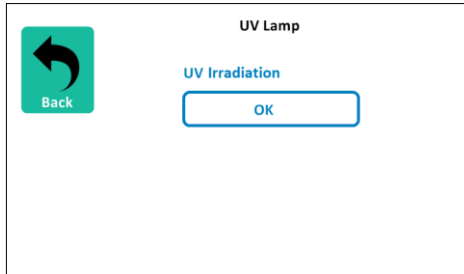
(Used by manufacturers and distributors)

### ➤ UV lamp (UV irradiation)

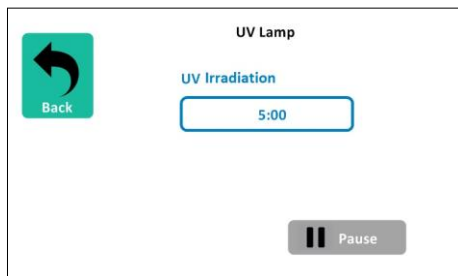


**Warning:** Before start of UV irradiation, please make sure front door has been closed, the Collection holder and the Reagent holder has been removed.

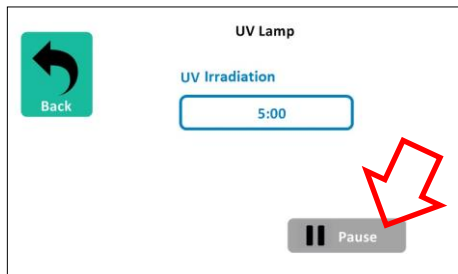
2



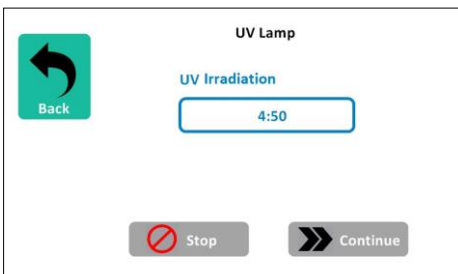
(1) Press OK to start UV irradiation.



(2) UV irradiation will start and continue for **5 minutes**.



(3) Press Pause button to stop UV irradiation



(4) Press “Stop” if you really want to terminate UV irradiation.  
Press “Continue” if you want to continue UV irradiation.

➤ **Delivery mode**

(Used by manufacturers and distributors)

As usual, if you proceed the operation, this screen will be showed up.

2

➤ **Devices test**

(Used by manufacturers and distributors)

This function is only for engineer use.

---

## 2.5 Collection of Isolation Samples

---

- (1) Confirm the power OFF of device

Open the front door and take out the Reagent holder.

---

**Note:** The isolation sample may be spilt if the collection tube holder is tilted. Take out while holding the handle of the collection tube holder with one hand and supporting the bottom surface of the holder with the other hand.

---

- (2) Securely close the cap of microtubes (collection tubes) on Collection tube holder.
- (3) Take out the Collection holder from the device.
- (4) Collect the microtubes (collection tubes).

---

## 2.6 After Operation

---

### ■ Isolated Sample Collection

- (1) Confirm system power OFF.
- (2) Open the front door and take out all holders.
- (3) Remove the reagent strips from the Reagent holder and dispose them.



**Biohazard:**

Reagent strips should be disposed in accordance with customer's infectious waste treatment manuals.

- (4) Remove the waste tubes from the Collection holder and dispose of waste fluid and waste tubes.



**Biohazard:**

Waste fluid and waste tubes should be disposed in accordance with customer's infectious waste treatment manuals.

### ■ Post Treatment of Device

Refer to "3. Cleaning and Maintenance" and carry out system maintenance as necessary.

- (1) Close the front door

The isolating operation is now completed.

When the operation is to be continued, start from "2.3 Preparation for Operation".

---

**Important:** If the device will not be used again for more than 1 week, refer to "3.2 Weekly Maintenance" and carry out maintenance.

---

## 3 Cleaning and Maintenance

The maintenance procedures for the device are explained below.



**Biohazard** When cleaning, wear proper gloves, mask and protective goggles.



**Caution**

Carry out cleaning of system main unit and accessories at every operation.  
Operation while contaminated will cause cross-contamination.



**Warning**

Ethyl alcohol is an inflammable substance. Do not use in proximity of open flame.

**3**

### 3.1 Daily Maintenance

#### I. Cleaning Agents

- **Alcohol:** Use ethanol
- **Bleach:** 0.1% sodium hypochlorite solution (2% chlorine bleach).
- **Water:** Use distilled or deionized water.



**Caution**

Strong detergents may dissolve carrier and worktable surface coatings.

- Use only recommended cleaning agents.
- Chlorine solution can pit equipment and metal. Use adequate amounts or repeated applications of 70% ethanol or water until chlorine residue is no longer visible.

#### II. Decontamination Procedure using 0.1% Sodium Hypochlorite

##### A. Between different run

- i. Prepare a 0.1% volume/volume (v/v) sodium hypochlorite solution.
- ii. Apply 0.1% Sodium Hypochlorite solution to area and wait for at least 1 minute (no greater than 5 minutes, prolonged metal/bleach contact will pit the surface).
- iii. Apply deionized/distilled water and wipe off bleach.
- iv. Apply 70% ethanol.

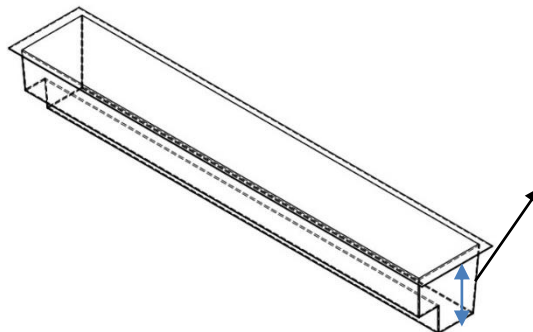
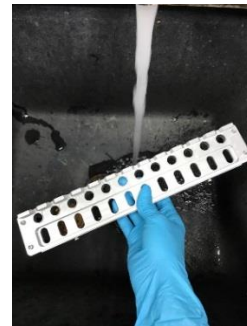


B. End of day

- i. Reagent holder washes with water and air dry.



- ii. If Collection holder has been contaminated, loosen the wing screw of Plastic tank and take it off. Wash Collection holder with water and air dry then replace the new Plastic tank and tight the screw.



Notice the direction!

Front: For Waste Tube

- iii. Clean system worktable.

## 3.2 Weekly Maintenance

### I. Cleaning Agents

- Alcohol: Use 70-75% ethanol.

### II. Clean Piercing Needles. Wipe with 70% ethanol.



### III. (Optional) UV Irradiation. Please refer to page 18

- At “Home” screen, select “System”
- At “System” screen, select “UV lamp”.
- Make sure the front door already has been closed. Press “OK” button to start the UV irradiation.
- If it is necessary, you can press “Pause” button.

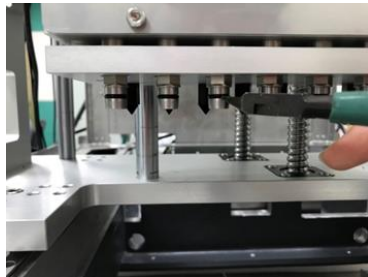
3

## 3.3 Half a Year Maintenance

It is recommended to replace O-ring every half a year.

(It may be changed up to your frequency of use.)

- Use a sharp blade to cut off old O-ring



- Put grease on O-ring



- iii. Apply with new one



Please wipe the excessive grease by paper.

### 3.4 How to replace the power fuse



**Warning**

There is a danger of electric shock.

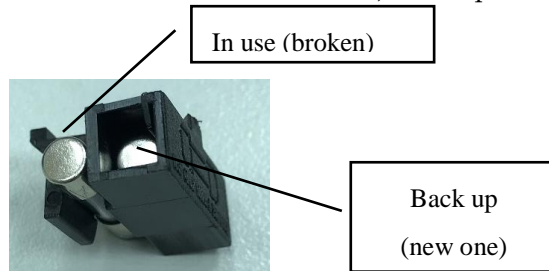
Always unplug the power cable from the AC inlet before replacing the fuse.

Please check whether AC inlet is broken and replace it if necessary.

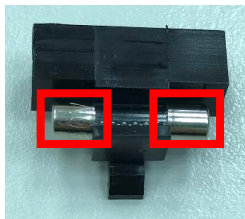
- i. Please take out the fuse holder from AC inlet.  
If this time is the first time changing, then it will two pcs of fuse inside it.  
One is in use, the other one is for back up.



- ii. Take out the in use (broken one) fuse, and replace the new one.



- iii. Make sure the fuse is installed in the middle. Two side silver parts (red frame) should be exposed outside.



- iv. Insert the fuse holder to AC inlet. Ensure the direction is correct.  
If it is available. Please prepare spare fuse for further used.  
**Specification: AC250V, 5A**





# 4 Before Concluding as a Failure

"Was the operation a failure?" Error messages displayed on the operation panel are explained below.

## 4.1 Troubleshooting

If sample isolation is unsuccessful, check following table and try solutions.

If problem is still not resolved, contact our customer consultation desk.

If you feel that isolation was a failure, please check the following before contacting us.

Phenomenon	Possible Cause	Countermeasure
Pipetting of wrong volumes	<ol style="list-style-type: none"> <li>1. Worn piston O-rings</li> <li>2. Tip might be bent</li> </ol>	<ol style="list-style-type: none"> <li>1. Change O-ring</li> <li>2. Check the Tip head</li> </ol>
No piercing	The motor or connector is not working properly	Restart system. If problem resists, contact Technical service.
Axis no Movement	Motor or connector is not working properly	Restart system. If problem resists, contact technical service
UV lamp is not working	<ol style="list-style-type: none"> <li>1. UV lamp was installed incorrect.</li> <li>2. The wire connect to the UV starter was not inserted well.</li> <li>3. Door is not closed or UV sensor is not sensed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Follow operation manual and re-install.</li> <li>2. Contact to local distributor.</li> <li>3. Close the door and check the UV sensor.</li> </ol>
LED light is not working	The wire connect to the TFT board was not inserted well or broken.	Contact to local distributor.
Does not operate when power is turned ON	Is the power plug connected in an AC outlet? Or Power Switch is on?	Securely insert the power plug in an AC outlet and power on.
Operation panel cannot display or operate.	Possibility of system failure.	Contact to local distributor.
Crash happened when machine is working.	Something may interfere machine operation.	<ol style="list-style-type: none"> <li>1. Clear the worktable and check accessories is put in the right position.</li> <li>2. Power off and contact to local distributor.</li> </ol>
Abnormal noise from system.	Possibility of system failure.	Contact to local distributor.
Strange smell from the system.	Possibility of system failure.	Contact to local distributor.

## 4 Before Concluding as a Failure

Abnormal happened when machine boot up.	Possibility of system failure.	Check the status and contact to local distributor.
Machine is not stop operation when door is opened.	Door sensor may be blocked with metal material.	Remove the metal material and check again.
Machine cannot work when door is closed.	Door sensor is not sensed.	Check door is closed well. Adjust the door sensor position.
Cartridge fluid is not correctly caught in waste tubes. (Overflow in the plastic tank)	1. Plastic tank is not installed correctly. 2. Is waste tube and elution tube put well 3. Y2 axis motor is not working.	1. Follow operation manual and re-install. 2. Follow operation manual and put it in the right position. 3. Contact to local distributor.
Elution tube is empty.	1. Plastic tank is not installed correctly. 2. Is waste tube and elution tube put well 3. Y2 axis motor is not working.	1. Follow operation manual and re-install. 2. Follow operation manual and put it in the right position. 3. Contact to local distributor.
Machine stop when it is performing protocol.	Possibility of system failure.	Noted which step and contact to local distributor.
Foil is not broken or the hole is not in the middle.	Piercing Needles was installed incorrectly.	Contact to local distributor.
Elution volume is less.	Is elution buffer remain in the cartridge?	Check the cylinder and air tube is working well.
Elution volume is more.	Wash buffer is not passed through completely. Maybe Tube is clogged.	Sample input is too much. Please follow the recommended volume in the operation manual.

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**Automated Nucleic Acid Isolation Device  
QuickGene-Auto12S/QuickGene-Auto24S Operation Manual**

**Issuer: Kurabo Industries, Ltd.**

**Advanced Technology Division / Bio-Medical Department**



**Kurabo Neyagawa Techno Center 3F, 14-5 Shimokida-cho, Neyagawa, Osaka 572-0823**

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 18 °C – 30 °C ,  30%–80%



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