

# Handheld Nebulizer

## Manual

Model N3

## 1. Operating principle

This product is mainly composed of piezoelectric components. The piezoelectric components convert electrical energy into mechanical energy and generate low ultrasonic vibration. The shock wave squeezes the liquid in the medication cup so that the liquid passes through the orifice of the orifice sheet to bring the liquid mist from the orifice piece to the nozzle or mask (please purchase the product and the manufacturer's products yourselves) for the inhaler.

## 2. Intended use

The piezoelectric atomizer is matched with drugs for the medical department and families to inhale and to humidify the human body.

- ◆ Be sure to read the original manufacturer's manual and use it according to the instructions before use.
- ◆ Please keep this instruction manual in a safe place so that it can be used as a reference in the future.
- ◆ This product is for personal use. Do not use the same atomizer for more than one person.

## 3. Contents

- ◆ The piezoelectric nebulizer is a medical device that must be used according to the doctor's instructions, the type, dosage, and method of use of the drug.
- ◆ The spraying characteristics of piezoelectric nebulizers vary with the nature of the drug, and the amount of spray may be adjusted. The spray rate varies depending on the drug used.

## Product Features

- ◆ The N2 mesh atomizer is mainly composed of a piezoelectric component. The piezoelectric component converts electrical energy into mechanical energy and generates ultrasonic vibration. The vibration squeezes the liquid in the medicine cup, and the liquid passes through the micro-spray of the sprayed piece. The hole atomizes the liquid and ejects it from the sprayed piece to the mouthpiece or mask for use by the inhaler.

◆ Scope of application: atomized drugs for the treatment

Product characteristics and indicators

1. Power: DC-5V, 2 x "AA" 1.5V alkaline batteries	2. Net weight: About 96g (without battery)
3. Atomization rate: $\geq 0.2\text{ml}/\text{min}$	4. Size: L 50mm x W 48mm x H 130mm
5. Residual liquid amount: $\leq 0.5\text{ml}$	6. Inlet protection rating: IP22
7. Noise: $\leq 50\text{dB(A)}$	8. Contraindications: None
9. Nominal frequency: $110\text{kHz} \pm 10\%$	10. Operation mode: Continuous operation
11. Use period: 3 years (except for vulnerable parts)	
12. Distribution of the equivalent volume particle size: median particle size $4.0\mu\text{m} \pm 25\%$ , the diameter of fewer than 5 microns, fog particle occupancy ratio of not less than 60%.	
13. Continuous operating time: More than 1 hour (use 2 x new "AA" 1.5V alkaline batteries)	
14. Safety classification: Equipment that cannot be used in the presence of flammable anesthetic gas mixed with air or flammable anesthetic gas mixed with oxygen or nitrous oxide.	
15. Electrical safety requirements: internal power supply equipment, type B application	
16. Normal operating conditions: Temperature range: $5^\circ\text{C} \sim 40^\circ\text{C}$ Relative humidity range: 15% ~ 93% Atmospheric pressure range: 86kPa~106kPa	

## 17. Transportation and storage environment restrictions:

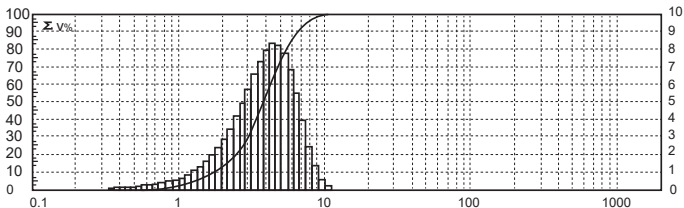
Ambient temperature range:  $-40^{\circ}\text{C}\sim+55^{\circ}\text{C}$

Relative humidity range: 10%~93%

Atmospheric pressure range: 70kPa~106kPa

## 18. Distribution curve of the particles' equivalent volume size (ambient temperature

$23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , relative humidity 45% ~ 65% environment):



※ Test conditions: ambient temperature to be set at  $23 \pm 2^{\circ}\text{C}$ , relative humidity to be set at 53%, use 0.9% physiological saline and our company's instrument test.

(Test data may vary with test conditions and liquids)

### Note:

When the storage temperature is lower than  $5^{\circ}\text{C}$ , the equipment should be returned to normal operating conditions before use! Store in a well-ventilated room and avoid vibrations during transportation.

## 4. Structural characteristics and operating principle

The basic principle of the net atomizer is shown in Figure 1. The device is composed of a medication cup and a sprayed sheet, wherein the spray sheet is composed of a vibrating film and a ring-shaped pressure point sheet. Through the annular piezoelectric piece, electric energy is converted into mechanical energy and ultrasonic vibration is generated, and the shock wave squeezes the liquid in the medicine cup so that the liquid is atomized through the micro-injection hole of the sprayed piece and is ejected from the sprayed piece to the mouthpiece or mask for inhalation.

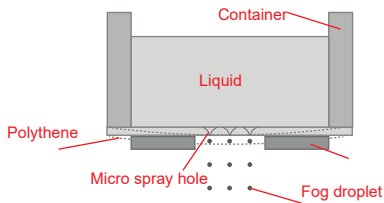


Figure 1: Basic Principle of Net Nebulizer

### ● Use and maintenance

To ensure the correct use of this product, please read this manual carefully and strictly follow the instructions for use. If in doubt, please contact your supplier or manufacturer.

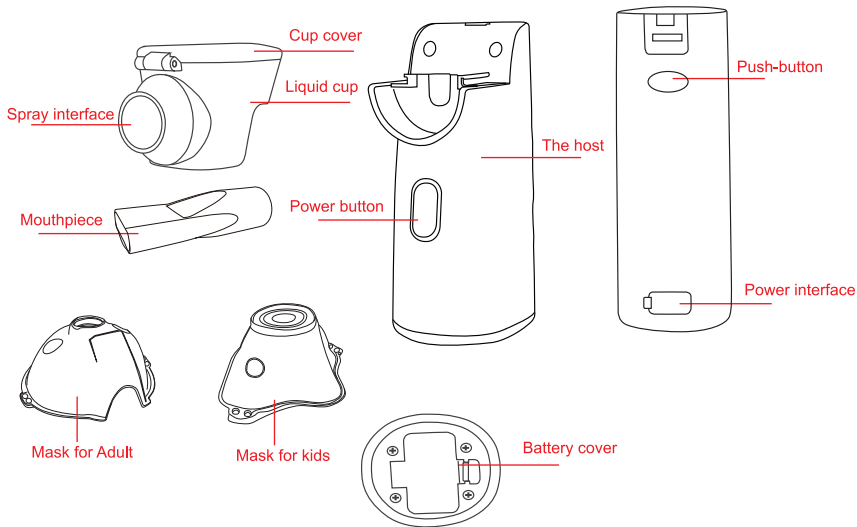
### ● Inspection after unpacking

Before installing and testing the product, the user first needs to check the appearance of the product, whether the type and quantity of the accessories are consistent with the list inside the manual.

If there is any defect, please contact the supplier or manufacturer in time.

- Schematic diagram of the structure and name of each component of the whole machine

The main body of the net atomizer, the medication cup module, and the inhalation device are composed of three parts. The inhalation device includes a mouthpiece and a mask.



## 5. The operational method of the nebulizer

Steps for usage



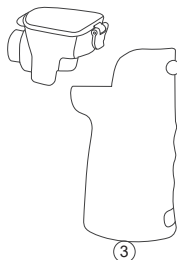
①

Plug power supply insert batteries



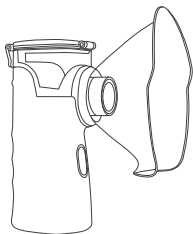
②

Inject liquid to the medicine container



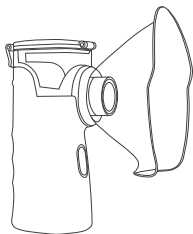
③

Assemble medicine container



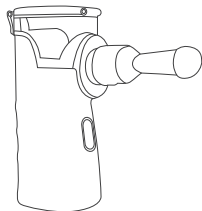
④

Mount face or mouthpiece



⑤

Start atomizing

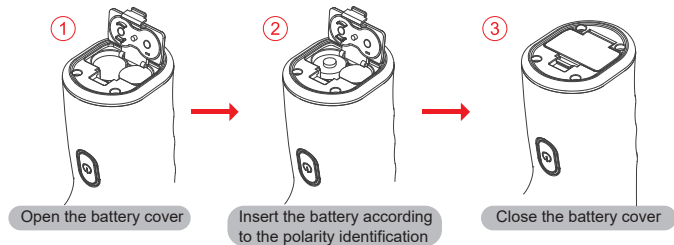


⑥

Mask or Mouthpiece

## Step explanation

With the bottom of the nebulizer main unit facing up, open the battery cover and insert the battery.



### Note

1. Do not mix different types of batteries.
2. When the indicator light (in Orange) flashes, it indicates that the battery is almost used up. Please replace the alkaline battery as soon as possible.
3. When not using the nebulizer for a long time, remove the battery.

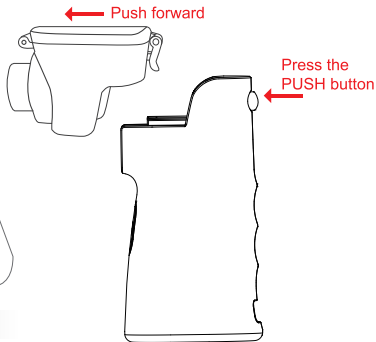


## Remove the vial module from the nebulizer

After pressing the PUSH button on the back of the main unit, push the medication cup toward the front of the main unit and remove the medication cup module.

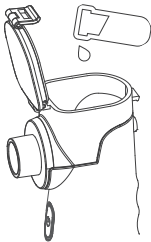
### Note

1. When removing the medication cup module from the atomizer, please confirm that the PUSH button is pressed and then push the medication cup module to avoid damage to the atomizer.
2. Do not insert your fingers or other objects from the spout area, nor touch the spray film to avoid causing damage to the film.



## Add liquid to the medication cup

Open the lid and inject the liquid into the cup as shown, and close the lid tightly.



### Note

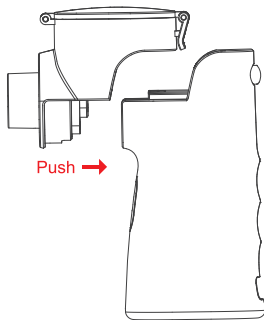
1. Add a minimum of 0.5ML of liquid medicine and no more than 8mL.
2. Be sure to follow the doctor's instructions to choose the type of liquid, the dosage and how to use it.
3. After adding the liquid, close the cup lid to prevent the liquid from leaking out.

4. Do not shake or carry the nebulizer with your medicine or other liquid in the medicine cup.
5. When using high concentration, high viscosity, suspension liquid, and volatile liquid, please follow the doctor's advice.

Assemble the cup mold back to the nebulizer main unit and confirm that the installation is in place.

### Note

1. Please make sure that the cup module is assembled (you can hear a slight “beep” sound, indicating that the buckle has been buckled), to ensure that the electrode is in good contact and can be used to spray normally.
2. Keep the main unit and the cup electrode clean, otherwise, the nebulizer may not spray properly.



## Install a mouthpiece or mask

Open the lid and inject the liquid into the cup as shown, and then fasten the lid.

### Note

1. When using the mask or the mouthpiece for the first time, wash it with pure water and dry it before use.
2. In addition to random and optional items, use a mask and mouthpiece approved by the company.

## Press the switch to start the nebulizer and inhaler.

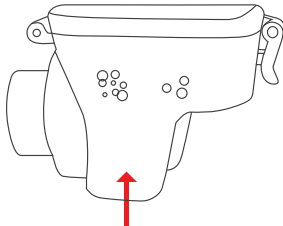
### Note

1. The nebulizer automatically shuts down when the cup does not contain any liquid or other liquid.
2. When the liquid is exhausted and there is no liquid contact with the sprayed piece, the atomizer will automatically turn off after flashing in Orange.
3. Since there are liquids of different characteristics, the atomizer cannot be automatically turned off when some of the liquid is exhausted. At this time, the switch should be turned off immediately, turn off the atomizer to avoid damage to the sprayed piece.
4. When the liquid is about to run out, it is recommended that the user tilts the front of the nebulizer (the side with the button) slightly toward himself to facilitate the atomization of the remaining liquid that is in contact with the spray.

5. After pressing the switch, the nebulizer will go through a short start-up period (within 2 seconds) before spraying normally.
6. When using the mask for inhalation, do not cover the venting holes with your hands or other objects.
7. When holding the atomizing inhalation, hold the nebulizer smoothly by hand. There is a venting hole on the lid of the medication cup. Do not cover it with your hands or other objects or normal spraying function will be affected.
8. If the user feels any discomfort during the atomization process, please turn off the machine immediately and consult a doctor promptly.

### Note

1. During the atomization, some of the liquid will be concentrated in the vicinity of the spray film in the medication cup, which will easily cause the sprayed piece to vacate and cause damage to the sprayed piece. At this time, please press turn off the atomizer, shake the main unit slightly, and restart.



The foam may concentrate area

## Turn off the power

### Note

1. When the liquid is exhausted, The blue light of the atomizer goes out and automatically shuts down.
2. If you need to stop using it during use, you can turn off the power by pressing the start switch. The nebulizer indicator (in blue) will go out.

## 6. Cleaning and maintenance after use

### Clean up the remaining liquid

- ◆ Remove the mouthpiece or mask from the cup.
- ◆ Open the cup lid and drain the remaining liquid.
- ◆ Add a small amount (2-5 mL) of pure water to the cup and close the lid. Gently shake the cup to dissolve the residue in pure water.
- ◆ Add a small amount (2-5 mL) of pure water to the cup and close the lid. Gently shake the cup to dissolve the residue in pure water.
- ◆ Open the cup lid and pour off the solution in the cup, add a small amount (2-5mL) of purified water.
- ◆ Keep pressing the start button until the indicator light flashes alternately. At this time, the atomizer enters the cleaning mode, and the pure water is atomized and sprayed to clean the residual liquid on the sprayed piece.

## Note

1. Always remove the battery before cleaning and maintenance.
2. The cup module is a consumable part and no warranty is provided. Under normal circumstances, the life span of the cup is half a year (3 times a day in a normal temperature environment or 30 minutes per day). The mechanical life of the cup varies with the medication used.
3. If the residual liquid is difficult to be removed, it can be washed with hot water or washed repeatedly.
4. Be sure to clean the remaining liquid after each use, otherwise, it will cause the atomizer spray piece to clog and affect the atomization effect.
5. The cleaning mode is only used to clean the spray film after atomization is completed, and it cannot be used for normal liquid atomization.

## Cleaning

- ◆ Main unit: use a damp gauze, gently wipe the stain on the main unit and dry it with a new gauze.
- ◆ Clean the electrodes on the main unit and the cup unit to ensure good connection of the cup module to the main unit.

## Note

1. Do not wipe the mesh nebulizer with a volatile liquid such as benzene, benzine or thinner.
2. Do not use a cotton swab or other items to touch the electrodes on the main unit and the medication cup module, causing them to fall off.
3. Remove the battery before cleaning the parts.

- ◆ Cup module and inhalation device: Clean the cup module and inhalation device with pure water
- ◆ Dry the cleaned parts with new gauze and place them in a clean place to dry thoroughly.

## Note

1. Do not use cotton paper or other cloth to wipe the cup module to prevent residual paper dust or cloth from getting into contact with the cup and clogging the sprayed piece, resulting in failure to spray properly.
2. Do not use cotton swabs or other items to get into contact with the spray film.
3. Do not use any other detergent or tap water to clean the cup or other parts except pure water.

- ◆ Place all parts of the nebulizer in a clean place

## Disinfection

Be sure to disinfect the inhalation device (mouthpiece and mask) after each use. If the parts are seriously contaminated, please replace the parts in time. There are two ways to disinfect.

- ◆ Alcohol disinfection: disinfect the inhalation device with 75% medical alcohol.
- ◆ Disinfection of acetic acid solution: Disinfect the inhalation device by using 1 aliquot of white vinegar with 3 equal parts of pure water to make acetic acid water.

### Note

1. After disinfection, please rinse thoroughly with pure water to avoid alcohol and acetic acid residue.
2. Do not let the main unit, the cup module fall or be shocked.
3. Do not poke the nebulizer with a needle or other sharp objects.
4. Do not place the main unit and other components in extreme heat, cold or under direct sunlight.
5. Do not plug and unplug the power adapter with wet hands.
6. This product should be purchased and used under the guidance of a doctor.
7. When storing or using the nebulizer, keep it out of reach from children or people with mental illnesses. They can only use the device under the supervision of an adult.
8. The nebulizer can be used by many people but the accessories (mask, mouthpiece) that come into contact with the human body are limited to the same person to prevent cross-infection. If more than one person uses more than one accessory for the main unit, the main body and the accessories should be stored separately.



9. Do not disassemble the main unit and try to repair it yourself.

10. Do not store the nebulizer if there is medicine or water in the medicine cup.

## After-sales service

1. If problems caused by non-human factors occur within one week from the date of purchase, our company can offer return, replacement, and maintenance. Given that the use and conditions of storage are normal, if there are any issues related to the quality of the product within one year from the date of purchase, our company will provide free maintenance. If there are any problems with the quality of the product after one year after the date of purchase, according to the invoice and warranty card, the user can visit the after-sales service department, office or dealer of the company, and our company will provide parts for maintenance with reasonable charges. If the user cannot provide the invoice, the maintenance date is set as one month after the production date.
2. The following conditions are not covered by the warranty: ① components that are worn-out easily: medication cup module、suction device; ② technical errors caused by disassembly, repair and transformation of the product without authorization;

- ③ Faults caused by dropping the device carelessly in the process of use and move;  
④ Faults caused by improper use; ⑤ Getting water, medicine, and other liquids into the main unit, causing it to malfunction; ⑥ Faults caused by failure to operate the device according to the instructions; ⑦ Faults caused by unforeseen natural disasters (such as fire, earthquake, flood, etc).

3. If necessary, the user may be required to provide a circuit diagram and necessary information for repair. If there is any problem in repairing the electrical circuit, contact the manufacturer.

### List of components

Main unit: 1 set

Mouthpiece: 1 pcs

Medication cup module: 1 set

Certificate of conformity: 1 pcs

English Manual : 1 pcs

Masks: 2 pcs (one for adults and one for children)

Storage bag: 1 pcs

If you need further accessories, please contact the supplier.