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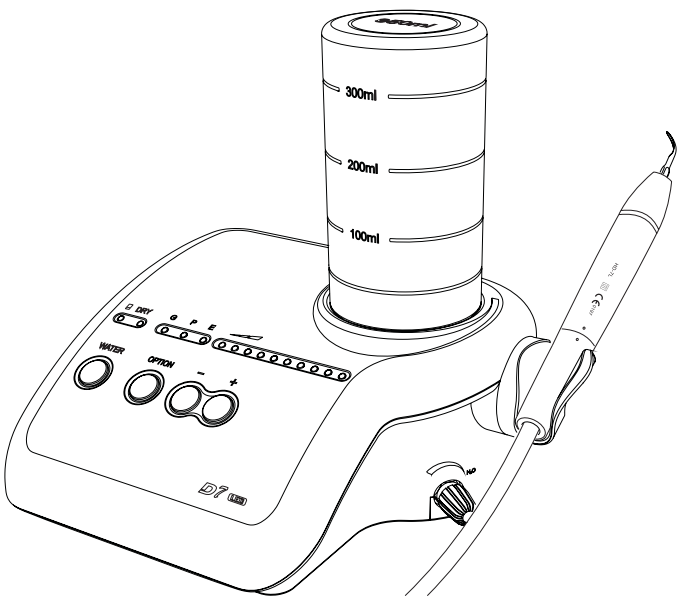
D7 LED ULTRASONIC SCALER

INSTRUCTION MANUAL

Please read this manual before operating

ZMN-SM-033 V2.8 - 20231102

Industrial design patent No.: CN 200830300434.9



www.glwoodpecker.com

GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.

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1. The installation and components of equipment

1.1 Instruction

Guilin Woodpecker Medical Instrument Co., Ltd. is a professional manufacturer in researching, developing and producing ultrasonic scalers. The product is mainly used for teeth cleaning and also an indispensable equipment for teeth disease prevention and treatment. The new product D7 LED ultrasonic scaler has scaling, perio, endo and auto-water supply functions with the following features:

1.1.1 Optical handpiece, more convenient for clinical operation.

1.1.2 With auto-water supply function, easier operation.

1.1.3 The inner water pipe is made from antiseptic material, clinical fluids, such as Hydrogen peroxide, chlorhexidine and sodium Hypochlorite, etc, can be used perfectly under the mode of auto-water supply system so that the performance of perio and endo is improved dramatically.

1.1.4 The handpiece is detachable and can be autoclaved to the temperature of 134°C and the pressure of 0.22MPa.

1.1.5 Automatic frequency tracking ensures that the machine always works on the best frequency and performs more steadily.

1.1.6 Controlled by PC, easy operation and more efficient for scaling.

These features make D7 LED become a new generation product in the world dental market.

1.2 Components

1.2.1 The components of machine are listed in the packing list.

1.2.2 Product performance and structure

Ultrasonic scaler is composed of electrocircuit, water way and ultrasonic transducer.

1.2.3 Scope of application

Ultrasonic scaler D7 LED is used for the dental calculus elimination and root canal treatment.

1.3 The main technical specifications

1.3.1 Power supply input: 220 - 240V~ 50Hz/60Hz 150mA

1.3.2 Main unit input: 24V~ 50Hz/60Hz 1.3A

1.3.3 Output primary tip vibration excursion: ≤100μm

1.3.4 Output half-excursion force: <2N

1.3.5 Output tip vibration frequency: 28kHz±3kHz

1.3.6 Output power: 3W to 20W

1.3.7 Main unit fuse: T1.6AL 250V

1.3.8 Power supply fuse: T0.5AL 250V

1.3.9 Weight of main unit: 1.17kg

1.3.10 Weight of power supply: 1 kg

1.3.11 Operating mode: Continuous operation

1.3.12 Type of protection against electric shock: Class II equipment

1.3.13 Degree of protection against electric shock: Type BF applied part

1.3.14 Degree of protection against harmful ingress of water: Ordinary equipment

1.3.15 Protection degree against water (used on the foot switch): IPX1

1.3.16 Applied part of the equipment: handpiece and tip

1.3.17 Degree of safety of application in the presence of a Flammable Anaesthetic Mixture with air or with Oxygen or Nitrous Oxide: Equipment not suitable for being used in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

1.4 Installation of the main components

Sketch map for installation and connectiom.

1.4.1 The front and back sketch map of the main unit

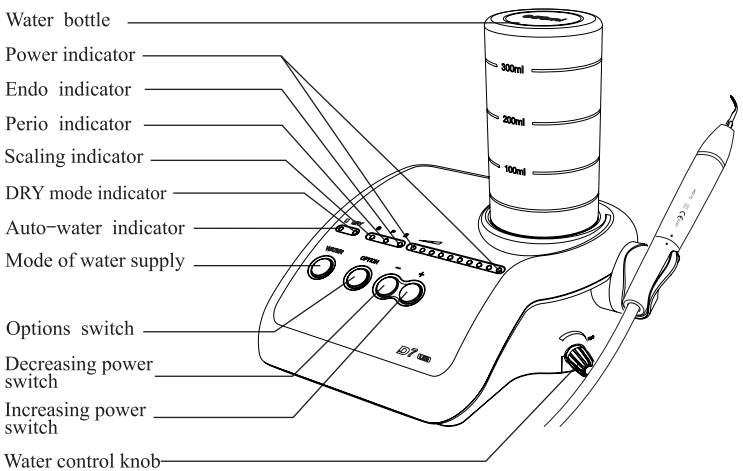


Figure 1

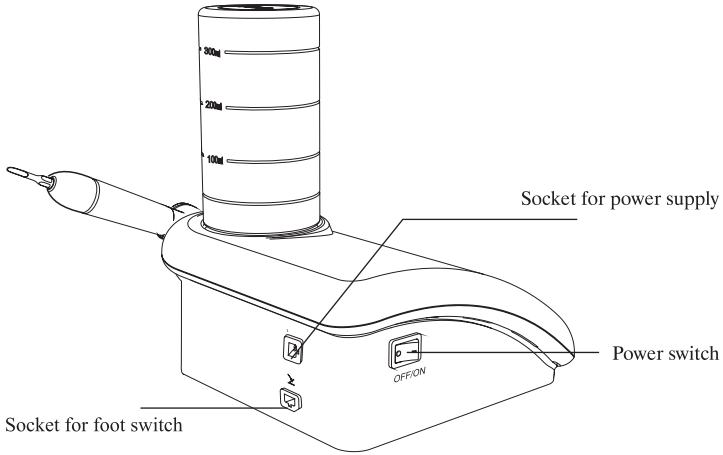


Figure 2

1.4.2 Sketch map for connection of foot switch, power supply and main unit.

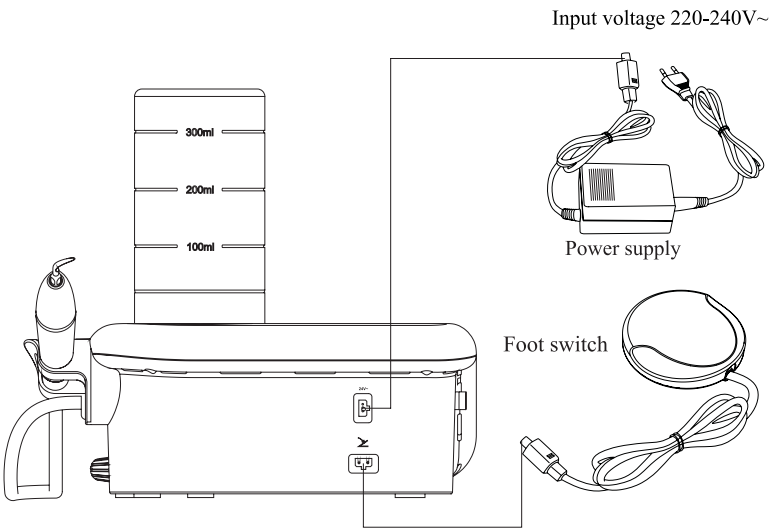


Figure 3

1.4.3 Water way connection

Sketch map for water bottle installation

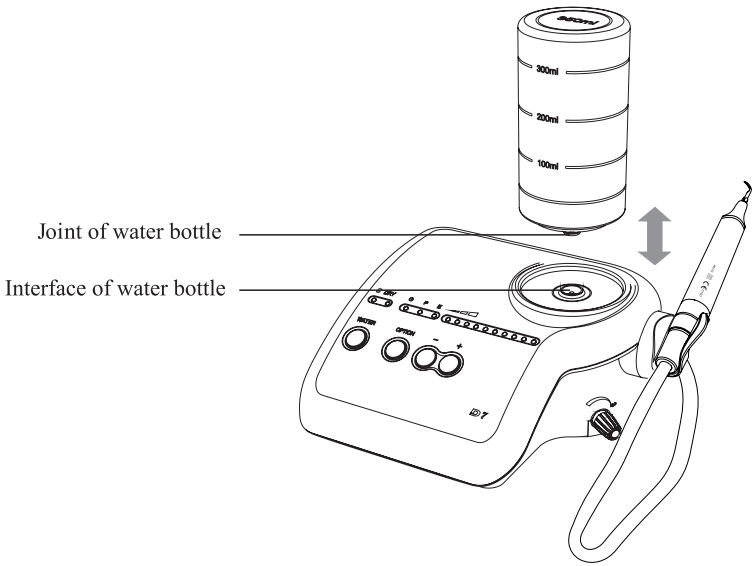


Figure 4

1.4.4 Sketch map for connection of detachable handpiece

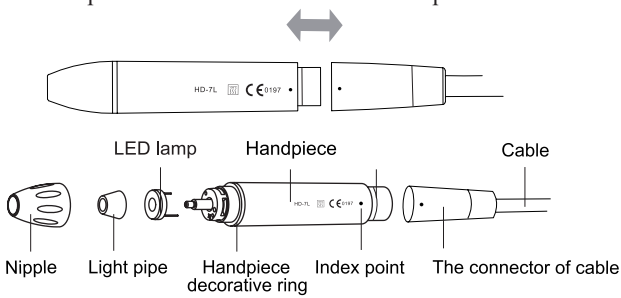


Figure 5

1.4.5 Sketch map for how to install tip and endochuck with wrench

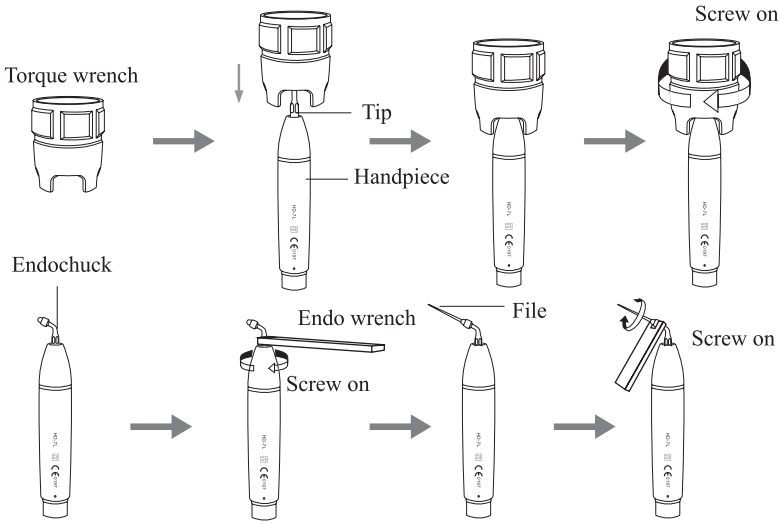


Figure 6

2. Product function and operation

2.1 Scaling function

2.1.1 Operation

a) Open the packing box, make sure that all the parts and accessories are complete according to the packing list. Take the main unit out of the box and put it on a stable plane.

b) Turn the water control knob to the max based on symbol as shown in 3.5.2 [note l].

c) Insert the plug of the foot switch to its socket (See Figure 3).

d) Water way installation:

Install the bottle reversely to the connector with adequate purified water (See Figure 4).

e) Screw the scaling tip tightly to the handpiece by torque wrench, then connect the handpiece and the connector of cable correctly.

f) Insert the plug of the power supply to its socket , then get through to the power.

g) Switch on the main unit, then the scaling indicator and the first five power indicators shine, auto-water indicator is on.

h) According to need, press water button to choose auto-water or DRY mode.

The indicator of choosen mode is on.

i) Select a suitable scaling tip as you need, screw it on the handpiece tightly by the torque wrench (See Figure 6).

j) Step on the foot switch, the tip begins to vibrate, and the LED lamp on the top of the handpiece shines. Release the foot switch, the LED lamp keep shining for 10 seconds.

k) The normal frequency is extremely high. Under the normal working state of the scaling tip, a light touch and a certain to-and-fro motion will eliminate the tartar without heating. Overexertion and long-time lingering are forbidden.

l) Vibration intensity: Adjust the vibration intensity as you need, generally increase the power by pressing the Increasing Power Switch to a higher grade. According to patient's different sensitivity and the rigidity of the gingival tartar, adjust the vibration intensity during the clinical treatment.

m) Water volume adjust: Step on the foot switch, and the tip begins to vibrate, then turn the water control knob to form fine spray to cool down the handpiece and clean the teeth.

n) The handpiece can be handled in the same gesture as a pen in hand.

o) During the clinical treatment, be sure not to make the end of tip touch the teeth vertically and not to make the tip overexert on the surface of the teeth in case of hurting the teeth and damaging the tip.

p) After finishing operation, keep the machine working for 30 seconds on the water supply condition in order to clean the handpiece and the scaling tip.

q) Unscrew the scaling tip and pull out handpiece, then sterilize them.

Notice:

① Don't pull out the handpiece when the foot switch is stepped on and the machine is producing ultrasonic vibration.

② Please don't choose dry mode unless needed in the treatment, please don't make the machine work under dry mode for a long time. The teeth will be hurt if the handpiece and tips get overheat during the treatment.

2.1.2 Instruction for main components of detachable handpiece (See Figure 5):

a) Nipple: The nipple can be removed. You can screw out the nipple and clean the pole with alcohol termly.

b) Decorative ring: can be disassembled and cleaned with alcohol regularly, can be autoclaved under the high temperature and pressure.

c) Handpiece: The main part of the whole handpiece, can be autoclaved under the high temperature and pressure.

d) The connector of the cable: Connect the handpiece with the water source and power supply of the main unit.

e) LED lamp、Light pipe: Clean them with purified water and sterilize them under the high temperature of 134°C and high pressure of 0.22Mpa.

Notice: Keep dry when the detachable handpiece connects to the connector of

the cable.

2.1.3 Instruction of torque wrench (See Figure 6)

a) The torque wrench's structure is designed in special way which can control the strength of the scaling tip's installation properly and correctly. It also can guarantee the operator screw or unscrew the scaling tip effectively and keep their hands away from being scratched.

b) Operation

① Take the scaling tip into the torque wrench, operate as showed in figure 6.

② Tip installation: Hold the handpiece, turn the tip toward direction as showed in figure 6 with the torque wrench. Turn one more circles when the tip stops, then the tip is installed.

③ Tip uninstallation: Hold the handpiece, turn the wrench toward anti-clockwise direction.

④ Sterilize it in sterilizer after each treatment.

⑤ The torque wrench must be cooled naturally after sterilization to avoid scald when using next time.

⑥ Keep the torque wrench in a cool, dry and ventilated place and keep it clean.

2.2 Auto-water supply function

2.2.1 Usage process

a) Pull out the water bottle vertically.

b) Open the lid, fill the bottle with adequate purified water and tighten the lid.

c) Clean the joint and interface of water bottle.

d) Place the bottle with water upside down, insert the joint into the interface vertically (See Figure 4).

e) Press "WATER" to choose auto-water supply.

2.2.2 Notice

a) Make sure the air hole and water entrance are unblocked (See Figure 7).

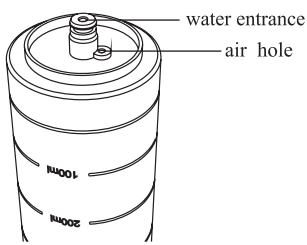


Figure 7



Figure 8

b)Check if the cushion inside the lid is on good condition. If it becomes deformed or falls off, reinstall or change it.

c) Tighten the lid.

d) Clean the joint and interface of water bottle before each clinical operation.

e) After each clinical operation with clinical liquid, change a bottle with purified water, turn the water supply to max, make the machine work with auto-water supply for 30 seconds in order to keep the water way and spare parts clean and durable.

f) When the water is lower than water level lower limit, please add water (See Figure 8).

2.3 Endo function

2.3.1 Usage process

a) Fix endochuck to handpiece by endo wrench (See Figure 6).

b) Unscrew the screw cap on the endochuck.

c) Put the ultrasonic file into the hole in the front of endochuck.

d) Screw the screw cap with endo wrench to tight up the ultrasonic file.

e) Press option key, turn to endo function.

f) When ultrasonic scaler turns into endo function, only the first power indicator is on and the power is at the lst grade. Put the ultrasonic file into the patient's root canal slowly, step on the foot switch to start endo treatment. During the treatment, turn up the power gradually according to the needs.

2.3.2 Notice

a) When fixing endochuck,it must be screwed down.

b) The screw cap on the endochuck must be screwed down.

c) Don't press it too much when the ultrasonic file in root canal.

d) Don't step on the foot switch until the ultrasonic file is in root canal.

e) The power range of endo treatment is advised from the lst to the 5th grade.

3. Maintenance

3.1 Troubleshooting

Fault	Possible cause	Solutions
The scaling tip doesn't vibrate and there is no water flowing out when stepping on the foot switch.	The power plug is in loose contact.	Make the plug insert to the socket well.
	The foot switch is in loose contact.	Insert the foot switch to its socket tightly.
	The fuse in the main unit is broken.	Contact our dealers or us.

Fault	Possible cause	Solutions
The scaling tip doesn't vibrate but there is water flowing out when stepping on the switch.	The tip is in loose contact.	Screw the tip on the handpiece tightly (See Figure 6).
	The connect plug between the handpiece and the circuit board is in loose contact.	Contact our dealers or us.
	Something wrong with the handpiece.	Send the handpiece to our company to repair.
	Something wrong with the cable.	Contact our dealers or us.
The scaling tip vibrates but there is no spray when stepping on the foot switch.	The water control knob is not on.	Turn on the water contrl knob [note 1].
The vibration of the tip becomes weak.	The tip hasn't been screwed on to the handpiece tightly.	Screw the tip on the handpiece tightly (See Figure 6).
	The tip is loose because of vibration.	Screw on the tip tightly (See Figuree 6).
	The coupling between the handpiece and the cable isn't dry.	Dry it by the hot air.
	The tip is damaged [note 2].	Change a new one.
There is water seeping from the coupling between the handpiece and cable.	The waterproof "O"ring is damaged.	Change a new waterproof "O"ring.
The u-file doesn't vibrate.	The screw is loose.	Tighten it.
	Endochuck is damaged.	Change a new one.
There is noise coming from the endochuck.	The screw is loose.	Tighten it.

Fault	Possible cause	Solutions
LED light don't work	Poor contact	Contact tightly
	Something wrong with LED light	Change a new one
	LED lamp installed backwards	Please install the "+" of the LED lamp to the "+" of the handpiece
There is no water coming out from the handpiece (automatic water supply mode).	There is air in the water pipe.	Turn the water control to the Max, reinsert the bottle.

If the problem still can't be solved, please contact with local dealer or manufacturer.

3.2 Notes

[Note l] Turn the water control knob as symbol showed. It comes to the min, on the contrary direction, it comes to the max.

[Note 2] If the scaling tip has been screwed on tightly and there is fine spray too, the following phenomena show that the scaling tip is damaged:

a) The vibrating intensity and the water spray degree become weak obviously.

b) During treatment, it produces the sound like "buzz" from the scaling tip.

4. Cleaning, Disinfection and Sterilization

The cleaning, disinfection and sterilization of handpiece, tip, and wrench (include torque wrench and Endo wrench) are as follow.

Unless otherwise stated, they will be hereinafter referred to as “products”.

Warnings

The use of strong detergent and disinfectant (alkaline pH>9 or acid pH <5) will reduce the life span of products. And in such cases, the manufacturer takes no responsibility.

Do not clean the handpiece with ultrasound cleaning machine.

This device shall not be exposed to high temperature above 138℃.

Processing limit

The products have been designed for a large number of sterilization cycles. The materials used in manufacture were selected accordingly. However with every renewed preparation for use, thermal and chemical stresses will result in ageing of the products. The maximum number of sterilizations for handpiece is 600 times. For tips, it is 300 times. And for wrench, it is 1000 times.

4.1 Initial processing

4.1.1 Processing principles

It is only possible to carry out effective sterilization after the completion of effective cleaning and disinfection. Please ensure that, as part of your responsibility for the sterility of products during use, only sufficiently validated equipment and product-specific procedures are used for cleaning/disinfection and sterilization, and that the validated parameters are adhered to during every cycle.

Please also observe the applicable legal requirements in your country as well as the hygiene regulations of the hospital or clinic,especially with regard to the additional requirements for the inactivation of prions.

4.1.2 Post-operative treatment

The post-operative treatment must be carried out immediately, no later than 30 minutes after the completion of the operation. The steps are as follows:

1. Let the Ultrasonic Scaler works for 20-30 seconds at maximum water volume to flush the handpiece and tip;

2. Remove the handpiece from the Ultrasonic scaler and rinse away the dirt on the surface of product with pure water (or distilled water/deionized water);

3. Dry the product with a clean, soft cloth and place it in a clean tray.

Notes

a) The water used here must be pure water, distilled water or deionized water.

4.2 Preparation before cleaning

Steps

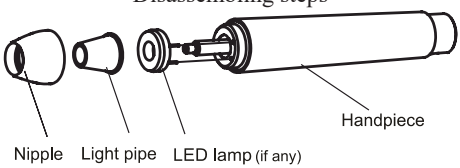
Tools: Torque wrench, tray, soft brush, clean and dry soft cloth.

1. Remove the tip from product with torque wrench provided by Guilin Woodpecker Medical Instrument Co., Ltd, and then put the tip and wrench into a clean tray.

2. Unscrew the nipple of product counterclockwise, remove the sealing ring, light pipe, and LED lamp(if any), and put them in the tray.

3. Use a clean soft brush to carefully brush the joints between product and the connector of cable, front thread, horn, nipple, seal ring, light pipe and LED lamp(if any) until the dirt on surface is not visible. Then use soft cloth to dry the product and accessories and put them into a clean tray. The cleaning agent can be pure water, distilled water or deionized water.

Disassembling steps



4.3 Cleaning

The cleaning should be performed no later than 24 hours after the operation.

The cleaning can be divided into automated cleaning and manual cleaning. Automated cleaning is preferred if conditions permit.

4.3.1 Automated cleaning

•The cleaner is proved to be valid by CE certification in accordance with EN ISO 15883.

•There should be a flushing connector connected to the inner cavity of the product.

•The cleaning procedure is suitable for the product, and the irrigating period is sufficient.

•Do not clean the handpiece with ultrasound.

It is recommended to use a washer-disinfector in accordance with EN ISO 15883. For the specific procedure, please refer to the automated disinfection section in the next section “Disinfection”.

Notes

a) The cleaning agent does not have to be pure water. It can be distilled water, deionized water or multi-enzyme. But please ensure that the selected cleaning agent is compatible with the product.

b) In washing stage, the water temperature should not exceed 45 °C, otherwise the protein will solidify and it would be difficult to remove.

c) After cleaning, the chemical residue should be less than 10mg / L.

4.4 Disinfection

Disinfection must be performed no later than 2 hours after the cleaning phase. Automated disinfection is preferred if conditions permit.

4.4.1 Automated disinfection-Washer-disinfector

•The washer-disinfector is proved to be valid by CE certification in accordance with EN ISO 15883.

•Use high temperature disinfection function. The temperature does not exceed 134 ° C, and the disinfection under the temperature cannot exceed 20 minutes.

•The disinfection cycle is in accordance with the disinfection cycle in EN ISO 15883.

Cleaning and disinfecting steps by using Washer-disinfector

1. Carefully place the product into the disinfection basket. Fixation of product is needed only when the product is removable in the device. The products are not allowed to contact each other.

2. Use a suitable rinsing adaptor, and connect the internal water lines to the rinsing connection of the washer-disinfector.

3. Start the program.

4. After the program is finished, remove the product from the washer-disinfector, inspect (refer to section “Inspection and Maintenance”) and packaging (refer to chapter “Packaging”). Dry the product repeatedly if necessary (refer to section “Drying”).

Notes

a) Before use, you must carefully read the operating instructions provided by the equipment manufacturer to familiarize yourself with the disinfection process and precautions.

b) With this equipment, cleaning, disinfection and drying will be carried out together.

c) Cleaning: (c1) The cleaning procedure should be suitable for the product to be treated. The flushing period should be sufficient (5-10 minutes). Pre-wash for 3 minutes, wash for another 5 minutes, and rinse it for twice with each rinse lasting for 1 minute. (c2) In the washing stage, the water temperature should not exceed 45 °C, otherwise the protein will solidify and it is difficult to remove. (c3) The solution used can be pure water, distilled water, deionized water or multi-enzyme solution, etc., and only freshly prepared solutions can be used. (c4) During the use of cleaner, the concentration and time provided by manufacturer shall be obeyed. The used cleaner is neodisher MediZym (Dr. Weigert).

d) Disinfection: (d1) Direct use after disinfection: temperature ≥ 90 ° C, time ≥ 5 min or A0 ≥ 3000.

(d2)Sterilize it after disinfection and use: temperature ≥ 90 ° C, time ≥ 1 min or A0 ≥ 600.

(d3) For the disinfection here, the temperature is 93 ° C, the time is 2.5 min, and A0>3000.

e) Only distilled or deionized water with a small amount of microorganisms (<10 cfu/ml) can be used for all rinsing steps. (For example, pure water that is in accordance with the European Pharmacopoeia or the United States Pharmacopoeia).

f) After cleaning, the chemical residue should be less than 10mg / L.

g)The air used for drying must be filtered by HEPA.

h) Regularly repair and inspect the disinfector.

4.5 Drying

If your cleaning and disinfection process does not have an automatic drying function, dry it after cleaning and disinfection.

Methods

1. Spread a clean white paper (white cloth) on the flat table, point the product against the white paper (white cloth), and then dry the product with filtered dry compressed air (maximum pressure 3 bar). Until no liquid is sprayed onto the white paper (white cloth), the product drying is completed.

2. It can also be dried directly in a medical drying cabinet (or oven). The recommended drying temperature is 80℃~120℃ and the time should be 15~40 minutes.

Notes

a) The drying of product must be performed in a clean place.

b) The drying temperature should not exceed 138 °C;

c) The equipment used should be inspected and maintained regularly.

4.6 Inspection and maintenance

In this chapter, we only check the appearance of the product. After inspection, if there is no problem, the handpiece should be immediately reassembled, installing the sealing ring, LED, light guide, and cone head in sequence to the handpiece, and then tighten the cone head clockwise.

4.6.1 Check the product. If there is still visible stain on the product after cleaning/disinfection, the entire cleaning/disinfection process must be repeated.

4.6.2 Check the product. If it is obviously damaged, smashed, detached, corroded or bent, it must be scrapped and not allowed to continue to be used.

4.6.3 Check the product. If the accessories are found to be damaged, please replace it before use. And the new accessories for replacement must be cleaned, disinfected and dried.

4.6.4 If the service time (number of times) of the product reaches the specified service life (number of times), please replace it in time.

4.7 Packaging

Install the disinfected and dried product and quickly package it in a medical sterilization bag (or special holder, sterile box).

Notes

a) The package used conforms to ISO 11607;

b) It can withstand high temperature of 138 °C and has sufficient steam permeability;

c) The packaging environment and related tools must be cleaned regularly to ensure cleanliness and prevent the introduction of contaminants;

d) Avoid contact with parts of different metals when packaging.

4.8 Sterilization

Use only the following steam sterilization procedures (fractional pre-vacuum procedure*) for sterilization, and other sterilization procedures are prohibited:

• The steam sterilizer complies with EN13060 or is certified according to EN 285 to comply with EN ISO 17665;

• The highest sterilization temperature is 138 ° C;

• The sterilization time is at least 4 minutes at a temperature of 132℃/134℃ and a pressure of 2.0 bar ~ 2.3 bars.

• Allow a maximum sterilization time of 20 minutes at 134 °C.

Verification of the fundamental suitability of the products for effective steam sterilization was provided by a verified testing laboratory.

Notes

a) Only products that have been effectively cleaned and disinfected are allowed to be sterilized;

b) Before using the sterilizer for sterilization, read the Instruction Manual provided by the equipment manufacturer and follow the instructions.

c) Do not use hot air sterilization and radiation sterilization as this may result in damage to the product;

d) Please use the recommended sterilization procedures for sterilization. It is not recommended to sterilize with other sterilization procedures such as ethylene oxide, formaldehyde and low temperature plasma sterilization. The manufacturer assumes no responsibility for the procedures that have not been recommended. If you use the sterilization procedures that have not been recommended, please adhere to related effective standards and verify the suitability and effectiveness.

* Fractional pre-vacuum procedure = steam sterilization with repetitive pre-vacuum. The procedure used here is to perform steam sterilization through three pre-vacuums.

4.9 Storage

1. Store in a clean, dry, ventilated, non-corrosive atmosphere with a relative humidity of 10% to 93%, an atmospheric pressure of 70KPa to 106KPa, and a temperature of -20 °C to +55 °C;

2. After sterilization,the product should be packaged in a medical sterilization bag or a clean sealing container, and stored in a special storage cabinet. The storage time should not exceed 7 days. If it is exceeded, it should be reprocessed before use.

Notes:

a) The storage environment should be clean and must be disinfected regularly;

b) Product storage must be batched and marked and recorded.

4.10 Transportation

1. Prevent excessive shock and vibration during transportation, and handle with care;

2. It should not be mixed with dangerous goods during transportation.

3. Avoid exposure to sun or rain or snow during transportation.

The cleaning and disinfection of main unit are as follows.

• Before each use, wipe the surface of the main unit, the connector of cable and cable with a soft cloth or paper towel soaked in 75% medical alcohol. Repeat the wipe for at least 3 times.

• Before each use, please let the Ultrasonic scaler works for 20-30 seconds at maximum water volume, then install the handpiece.

• After each use, please let the Ultrasonic scaler works for 20-30 seconds at maximum water volume, then remove the handpiece.

• After each use, wipe the surface of the main unit, the connector of cable and cable with a soft cloth soaked in clean water (distilled or deionized water) or a clean disposable wipe. Repeat the wipe for at least 3 times.

5. Precaution

5.1 Notice when using equipment

5.1.1 Keep the scaler clean before and after operation.

5.1.2 The handpiece, scaling tip, torque wrench, endo wrench and endochuck

must be sterilized before each treatment.

5.1.3 Don't screw or unscrew the scaling tip and endochuck when stepping on the foot switch.

5.1.4 The scaling tip must be fastened and there must be fine spray or drip coming out from the tip when operating.

5.1.5 Change a new one when the tip and ultrasonic file are damaged or worn excessively.

5.1.6 While scaler working ,the heat of scaling tip will become higher if there is no water flowing out.Please keep the water flow smoothly.

5.1.7 Don't twist or rub the tip and endochuck.

5.1.8 Ensure the connector of handpiece and the socket of the cable dry before installing the handpiece.

5.1.9 Don't pull the cable forcibly in case of the handpiece falling off from the cable.

5.1.10 Don't knock or rub the handpiece.

5.1.11 Please put the power plug into the socket easy to pull out, to make sure it can be pull out in emergency.

5.1.12 The power supply is considered as a part of ME equipment.This device can only be equipped with the special power supply of Guilin Woodpecker Medical Instrument Co., Ltd.

5.1.13 The power supply is NOT waterproof. Please keep it dry and away from the water.

5.1.14 After operation, turn off power, and pull out the plug.

5.1.15 We are only responsible for the safety on the following conditions:

I) The maintenance, repair and modification are made by the manufacturer or the authorized dealer.

II) The changed components are original of "DTE" and are operated according to instruction manual.

5.1.16 The internal screw thread of the scaling tips produced by some manufacturers maybe coarse, rusty and collapsed. This will damage the external screw threat of the handpiece irretrievably. Please use "DTE" brand scaling tips.

5.1.17 This model is only matched the power supply of our company.

5.1.18 Please select a suitable power when using different type of tips (refer to "TABLE OF OPERATING POWER OF THE TIPS").

5.2 Contraindication

5.2.1 The hemophilia disease patient is not allowed to use this equipment.

5.2.2 The patients or doctors with heart pacemaker are forbidden to use this equipment.

5.2.3 The heart disease patient, pregnant woman and children should be cautious to use the equipment.

5.3 Storage and maintenance

5.3.1 The equipment should be handled carefully and lightly. Be sure that it is far from the vibration, and installed or kept in a cool, dry and ventilated place.

5.3.2 Don't store the machine together with the articles that are combustible, poisonous, caustic, and explosive.

5.3.3 This equipment should be stored in a room where the relative humidity is 10% ~ 93%, atmospheric pressure is 70kPa to106kPa, and the temperature is -20°C ~ +55°C.

5.3.4 If not use for a long time, please make the machine get through to the power and water once per month for five minutes.

5.4 Transportation

5.4.1 Excessive impact and shake should be prevented in transportation. Lay it carefully and lightly and don't invert it.

5.4.2 Don't put it together with dangerous goods during transportation.

5.4.3 Avoid solarization and getting wet in rain or snow during transportation.

5.5 Working condition

5.5.1 Environment temperature: +5°C to +40°C

5.5.2 Relative humidity: 30% ~75%

5.5.3 Atmosphere pressure: 70kPa to 106kPa

5.5.4 A temperature of the water at the inlet:not higher than +25°C

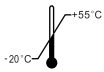
6. After service

We offer two year free repair to the equipment according to the warranty card.

The repair of the equipment should be carried out by our professional technician. We are not responsible for any irretrievable damage caused by the not professional person.

7. Symbol instruction

	Appliance compliance WEEE directive		Follow Instructions for Use
IPX1	Anti-drip device	IPX0	Ordinary equipment
	Alternating current		Foot switch interface
	Date of manufacture		Manufacturer
	Class II equipment		Type BF applied part

	Can be autoclaved		Used indoor only
	Mode of auto-water system		Add water
	Adjustment for the water flow	OFF/ON	Power switch
	Recovery		Keep dry
	Handle with care	SN	serial number
	CE marked product	~24V	24V AC power supply socket
	Water entrance pressure		Temperature limitation for storage
	Humidity limitation for storage		Atmospheric pressure for storage
EC REP	Authorised Representative in the EUROPEAN COMMUNITY		

8. Environmental protection

Please dispose according to the local laws.

9. Manufacturer's right

We reserve the rights to change the design of the equipment, the technique, fittings, the instruction manual and the content of the original packing list at any time without notice. If there are some differences between blueprint and real equipment, take the real equipment as the norm.

10. European authorized representative

EC REP MedNet EC-Rep GmbH
Borkstrasse 10 · 48163 Muenster · Germany

11. EMC - Declaration of conformity

<table>
<tr><th colspan="3">Guidance and manufacturer's declaration - electromagnetic emissions</th></tr>
<tr><td colspan="3">The model UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED are intended for use in the electromagnetic environment specified below. The customer or the user of the model UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED should assure that it is used in such an environment.</td></tr>
<tr><th>Emissions test</th><th>Compliance</th><th>Electromagnetic environment - guidance</th></tr>
<tr><td>RF emissions
CISPR 11</td><td>Group 1</td><td>The models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td></tr>
<tr><td>RF emissions
CISPR11</td><td>Class B</td><td rowspan="3">The modesl UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED are suitable for used in domestic establishment and in establishment directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.</td></tr>
<tr><td>Harmonic emissions
IEC 61000-3-2</td><td>Class A</td></tr>
<tr><td>Voltage fluctuations
/ flicker emissions
IEC 61000-3-3</td><td>Complies</td></tr>
</table>

Guidance & Declaration — electromagnetic immunity			
The models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED are intended for use in the electromagnetic environment specified below. The customer or the user of the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED should assure that It is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2kV for power supply lines ±1 kV for Input/output lines	±2kV for power supply lines ±1kV for interconnecting cable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line to line ±2 kV line to earth	±1 kV line to line	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11.	<5 % U_T (>95% dip in U_T.) for 0.5 cycle 40 % U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95 % dip in U_T) for 5 sec	<5 % U_T (>95% dip in U_T.) for 0.5 cycle 40 % U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95 % dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED require continued operation during power mains interruptions, it is recommended that the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance & Declaration - Electromagnetic immunity

The models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED are intended for use in the electromagnetic environment specified below. The customer or the user of the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	*3V* *3 V/m*	Portable and mobile RF communications equipment should be used no closer to any part of the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** 3V $d=1.2\times P^{1/2}$ 80 MHz to 800 MHz $d=2.3\times P$ 800 MHz to 2.5 GHz where *P* is the maximum output power rating of the transmitter In watts (W) according to the transmitter manufacturer and *d* Is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur In the vicinity of equipment marked with the following symbol: 

NOTE I At 80 MHz end 800 MHz. the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED are used exceeds the applicable RF compliance level above, the model UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Recommended separation distances between portable and mobile RF communications equipment and the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED

The model UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED is intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the models UDS-J, UDS-K, UDS-K LED, UDS-L, UDS-L LED, UDS-A, UDS-A LED, UDS-P, UDS-E, UDS-P LED, UDS-E LED, D1, D3, D5, D7, D3 LED, D5 LED, D7 LED are recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency o m		
	150kHz to 80MHz $d=1.2\times P^{1/2}$	80MHz to 800MHz $d=1.2\times P^{1/2}$	800MHz to 2,5GHz $d=2.3\times P^{1/2}$
0,01	0.12	0.12	0.23
0,1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) accordable to the transmitter manufacturer.

NOTE I At 80 MHz and 800 MHz. the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

The device has been tested and homologated in accordance with EN 60601-1-2 for EMC. This does not guarantee in any way that this device will not be effected by electromagnetic interference Avoid using the device in high electromagnetic environment.

12. Statement

All rights of modifying the product are reserved to the manufacturer without further notice. The pictures are only for reference. The final interpretation rights belong to GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD. The industrial design, inner structure, etc, have claimed for several patents by WOODPECKER, any copy or fake product must take legal responsibilities.

TABLE OF OPERATING POWER OF THE TIPS

Scaling	
Tip Model	Power
GD 1	1-10(G)
GD 2	1-10(G)
GD 3	1-10(G)
GD 4	1-10(G)
GD 5	1-10(G)
GD 6	1-10(G)
GD 7	1-10(G)
GD 8	1-10(G)
GD 9	1-10(G)
GD 10	1-10(G)
GD 11	1-10(G)

Periodontics	
Tip Model	Power
PD1	1-10(P)
PD2L	1-3(P)
PD2LD	1-2(P)
PD2R	1-3(P)
PD2RD	1-2(P)
PD3	1-6(P)
PD3D	1-6(P)
PD4	1-6(P)
PD4D	1-6(P)

Endodontics	
Tip Model	Power
ED1	1-3(E)
ED2	1-3(E)
ED3	1-6(E)
ED3D	1-3(E)
ED4	1-6(E)
ED4D	1-3(E)
ED5	1-6(E)
ED5D	1-3(E)
ED8	1-10(E)
ED9	1-10(E)
ED10	1-6(E)
ED10D	1-6(E)
ED11	1-6(E)
ED11D	1-6(E)
ED14	1-3(E)
ED15	1-3(E)

Cavity Preparation	
Tip Model	Power
SBD1	1-10(P)
SBD2	1-10(P)
SBD3	1-10(P)
SBDL	1-10(P)
SBDR	1-10(P)

Scan and Login website
for more information

Guilin Woodpecker Medical Instrument Co.,Ltd.
Information Industrial Park, Guilin National High-Tech
Zone, Guilin, Guangxi, 541004 P. R. China
Sales Dept.: +86-773-5873196/2350599
After-sales Service Dept.: 0773-5827898
E-mail: woodpecker4@glwoodpecker.com
Website: http://www.glwoodpecker.com

EC REP MedNet EC-Rep GmbH
Borkstrasse 10 · 48163 Muenster · Germany

Cut along the dashed line

Ultrasonic Scaler Warranty Card

Name of Customer		(Ⅰ) For Customer
Address Details		
Postal Code		
Tel		
Model		
Product No.		
Handpiece No.		
Purchase Date		
Contact Person		
Date	Maintenance Record	Repairer

Guilin Woodpecker Medical Instrument Co., Ltd.
Information Industrial Park, Guilin National High-Tech Zone, Guilin, Guangxi, 541004 P. R. China

Europe Sales Dept. Tel: +86-773-5873196, 2125222
North America, South America & Oceania Sales Dept. Tel: +86-773-5873198, 2125123
Asia & Africa Sales Dept. Tel: +86-773-5855350, 2125896
Fax: +86-773-5822450
E-mail: woodpecker@glwoodpecker.com, sales@glwoodpecker.com
Website: http://www.glwoodpecker.com

Distributor:

Seal

Ultrasonic Scaler Warranty Card

Name of Customer		(Ⅱ) For Distributor
Address Details		
Postal Code		
Tel		
Model		
Product No.		
Handpiece No.		
Purchase Date		
Contact Person		
Date	Maintenance Record	Repairer

Guilin Woodpecker Medical Instrument Co., Ltd.
Information Industrial Park, Guilin National High-Tech Zone, Guilin, Guangxi, 541004 P. R. China

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North America, South America & Oceania Sales Dept. Tel: +86-773-5873198, 2125123
Asia & Africa Sales Dept. Tel: +86-773-5855350, 2125896
Fax: +86-773-5822450
E-mail: woodpecker@glwoodpecker.com, sales@glwoodpecker.com
Website: http://www.glwoodpecker.com

Distributor:

Seal

Warranty Instruction

Ⅰ Period validity:
Two year's free repair for the whole unit (except for the easily-consumed parts) from the date of purchase. Lifetime maintenance.

Ⅱ Range of warranty:
Within the warranty period of validity, we are responsible for any troubles caused by quality problems or products technique and structure.

Ⅲ The following are beyond our warranty:
1. The damage caused by disobeying the operation instruction or lack of the needed condition.
2. The damage caused by unsuitable operation or disassembly without authorization.
3. The damage caused by unadvisable transportation or preservation.
4. There isn't the seal of distributor or the warranty card isn't filled in completed.

Warranty Instruction

Ⅰ Period validity:
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Harm of fake products

WOODPECKER and DTE are two brands of Guilin woodpecker medical instrument company. Recently, growing fake ultrasonic scaler handpieces, tips curing lights are produced and sold on the market, which do harm to users' interest.On this issue, We Woodpecker will crack down fake products and provide safe and secure medical instrument products.

1. Harm of fake ultrasonic scaler handpieces.

1.1 Fake handpieces with poor-designed inner structure can lead to frequent power leakage, which may cause medical accidents.
1.2 Material used on fake handpieces don' t pass biocompatible test, which can easily lead to irritability and poisoning.
1.3 Fake handpieces have quality problems of overheating, non-vibration and cracking, which cause ultrasonic scalers out of order.
1.4 Fake handpieces can' t be compatible with ultrasonic scalers, thus leading to circuit burn out.

2. Harm of fake scaler tips.

2.1 Fake tips are low in toughness, poor in resistance and easy to crack, thus easily cause medical accident.
2.2 Fake tips' screw threads are roughly processed, which can cause handpiece' s screw loosing and cracking.
2.3 Material used on fake tips is inferior and easily rusting, which can cause infection of patient.
2.4 Fake tips have used problem of poor water-spraying, bad screw-thread fit and water leaking, which leads ultrasonic scalers work wrongly.

3. Harm of fake curing light.

3.1 Fake curing light' s batteries can cause self-ignite, even explosion with poor-quality material and no complete charging management.
3.2 Light intensity of fake curing light is not constant, when battery level goes down under 60%, it would lead to incomplete solidification of resin, causing secondary dental caries.

