WOODPECKER®

Please read this manual before operating

UDS-K LED ULTRASONIC SCALER INSTRUCTION MANUAL

CE 0197

www.glwoodpecker.com

GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.

Contents

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 performs treatment. The product UDS-K LED ultrasonic scaler mainly used for tooth disease prevention and treatment. It contains the following features:

1.1.1 Optical handpiece, more convenient for clinical operation.

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

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

1.1.4 Digitally controlled, easy operation and more efficient for scaling.

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 UDS-K LED is used for the dental calculus elimination .

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 l.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: Tl.6AL 250V

1.3.8 Power supply fuse: T0.5AL 250V

1.3.9 Water pressure: 0.1bar to 5bar (0.01MPa to 0.5MPa)

1.3.10 Weight of main unit: 0.75kg

1.3.11 Weight of power supply: 1 kg

1.3.12 Operating mode: Continuous operation

1.3.13 Type of protection against electric shock: Class II

1.3.14 Degree of protection against electric shock: Type BF equipment

1.3.15 Degree of protection against harmful ingress of water: Ordinary equipment(IPX0), protection degree against water (used on the foot switch): IPX1

1.3.16 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

1.3.17 Working condition:

a) Environment temperature: +5°C to +40°C

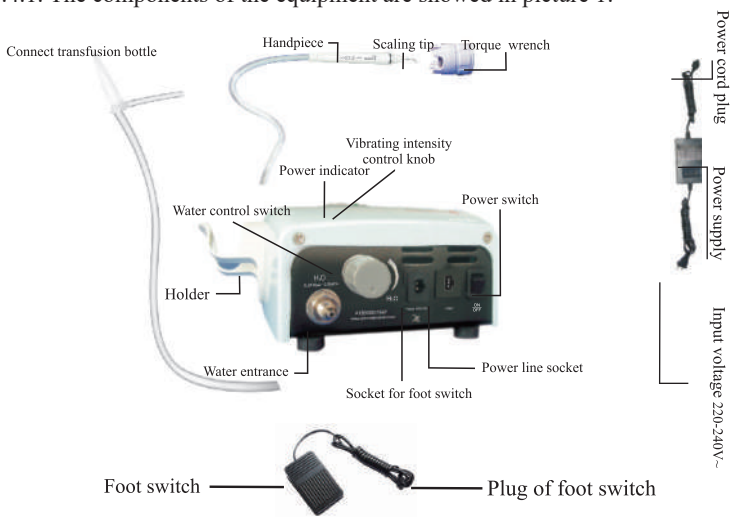
b) Relative humidity: 30% ~75%

c) Atmosphere pressure: 70kPa to 106kPa

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

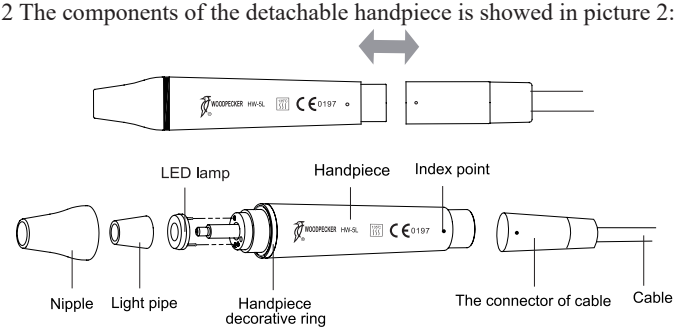
1.4 Installation of the equipment

1.4.1. The components of the equipment are showed in picture 1:



Picture 1

1.4.2 The components of the detachable handpiece is showed in picture 2:



Picture 2

Instruction for main components of detachable handpiece:

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

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

Handpiece: the main part of ultrasonic scaler, can be autoclaved under the high

temperature and pressure.

Symbol: autoclaved (134°C, 0.22MPa)

The connetor of the cable: connect the handpiece with the water source and power supply of the main unit.

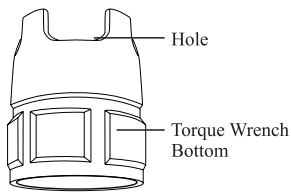
LED lamp、Light pipe: Clean them with purified water and sterilize them under the high temperature of 134℃ and high pressure of 0.22Mpa.

Note: Keep the connector dry.

1.4.3. Torque Wrench Instruction

a) Brief introduction and illustration (see picture 3)

The torque wrench's structure is designed in special way which can control the strength of the scaling tip 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.



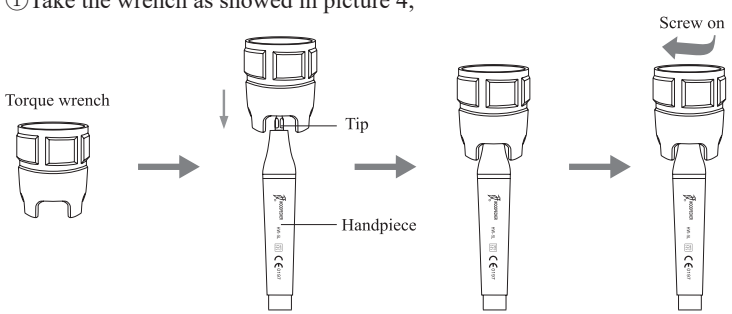
Picture 3

b) Sterilization condition

Sterilize in steam with temperature 134°C and pressure 0.22MPa

c) Operation

①Take the wrench as showed in picture 4;



Picture 4

②Tip installation: Hold the handpiece,turn the tip toward clockwise direction with the torque wrench .Turn two more circles after the tip stops , then the tip is installed ;

③Uninstall: Hold the handpiece , turn torque wrench toward counter-clockwise direction;

④Sterilize after each operation;

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

⑥Keep in a cool ,dry and ventilative place and keep it clean .

d) Notice

Forbidden sterilization way as following:

①Braise in liquor;

②Dip in iodine, alcohol or glutaraldehyde;

③Torrefy in oven or micro-wave oven.

Notice:We are not responsible for the damage of the torque wrench for any cases listed in above.

2. Product function and operation

2.1 Operation

2.1.1 Open the packing box, make sure that all the parts and accessories are complete according to the packing list.

2.1.2 Take the main unit out of the box and put it on a stable plane.

2.1.3 Turn the water control knob towards clockwise direction to the max and turn the vibrating intensity control knob towards clockwise direction to a suitable position.

2.1.4 Insert the plug of the foot switch to its socket.

2.1.5 Connect one end of the water pipe to the water entrance, and the other end to the pure water source.

2.1.6 Connect the handpiece: screw on the scaling tip to the handpiece by the torque wrench, then insert the connector of the cable to the handpiece correctly.

2.1.7 Get through to the power.

2.1.8 Press the power switch of the main unit, then the power indicator shines.

2.2 Operation method and function instruction

2.2.1 Make the scaler straight to the operator. Before turning on, please turn the vibrating intensity control knob to the minimum and water control switch to the maximum.(turn three circles towards clockwise direction from the minimum to the maximum)

2.2.2 The normal frequency is as high as 28kHz+ 3kHz. Under normal working condition light touch and a certain to-and-fro motion will eliminate the tartar without obvious heating. Overexertion and overstay are forbidden.

2.2.3 Select a suitable scaling tip according to your request, screw it on to the handpiece tightly by the torque wrench.(as showed in the picture 4)

2.2.4 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.

2.2.5 Vibrating intensity: Adjust the vibrating intensity as you need, generally turn the knob to the middle grade. Because different patients has different sensitivity and the rigidity of the gingival tartar is not alike too, the vibrating intensity should be adjusted during the clinical treatment.

2.2.6 Water adjustment: Step on the foot swtich, the tip begins to vibrate, then turn the water control switch to form fine spray to cool down the handpiece and clean the teeth.

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

2.2.8 Make the tip touch the surface of the teeth lightly, don't use too much pressure, or else the teeth will be hurt and the scaling tip will be damaged.

2.2.9 After finishing operation, keep the machine working for 30 seconds with the wate supply, so that the handpiece and the scaling tips can be cleaned.

2.2.10 Pull out the handpiece and unscrew the scaling tip, make them be sterilized.

Notice: Don't pull out the handpiece when the foot switch is stepped on and the machine is working.

3. Maintenance

3.1 Troubleshooting

Fault	Possible causes	Solutions
The scaling tip doesn't vibrate and there is no water flowing out when stepping on the foot switch.	The power pipe 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 of transformer is broken.	Contact our dealers or us.
	The fuse in the main unit is broken.	Contact our dealers or us.
The scaling tip doesn't vibrate but there is water flowing out when stepping on the foot switch.	The tip is in loose contact.	Screw the tip on the handpiece tightly (picture 4).
	The connect plug between the handpiece and the circuit board is in loose contact.	Contact our dealers or us.

Fault	Possible causes	Solutions
The scaling tip doesn't vibrate but there is water flowing out when stepping on the foot switch.	Something wrong with the handpiece.	Send it to our company to repair.
	Something wrong with the cable.	Contact our dealers or us.
The scaling tip vibrates but there is no water flowing out when stepping on the switch.	The water control switch is turned off.	Turn on the water control switch [note 1].
	There is impurity in the solenoid valve.	Contact our dealers or us.
	The solenoid valve is abnormal.	Percuss the solenoid valve by some hard things [note 2].
There is still water flowing out after the power is off.	There is impurity in the solenoid valve.	Contact our dealers or us.
The handpiece generates heat.	The water control switch is in a low grade.	Turn the water control switch to a higher grade [note 1].
The amount of spouting water is too little.	The water control switch is in a low grade.	Turn the water control switch to a higher grade [note 1].
	The water pressure is not high enough.	Make the water pressure higher.
	The water pipe is blocked.	Clean the water line by multi-function syringe [note2].

Fault	Possible causes	Solutions
The vibration of the tip becomes weak.	The tip hasn't been screwed on to the handpiece tightly.	Screw on the tip to the handpiece tightly (as showed in picture 4).
	The tip is loose by because of vibration.	Screw on the tip tightly (as shown in picture 4).
	The coupling between the handpiece and the cable isn't dry.	Dry it by the heated wind.
	The tip is damaged [note3].	Change a new one.
The vibration is too strong and the vibrating intensity control knob is malfunction.	The vibrating intensity control knob is damaged.	Contact our dealers or us.
There is water seeping from the coupling between the handpiece and the cable.	The waterproof “O” ring was damaged.	Change a new “O” ring.

If the problem still can't be solved yet, please contact the local distributors or our company.

3.2 Notice

[Note1] The water control knob can adjust the water volume according to the symbol.

[Note2] To clean the water pipe with the multi-function syringe of the dental unit. (as showed in the picture 5) :

Picture 5

① Snip the water pipe with scissors at a distance of 10cm-15cm from the

water entrance

② Turn on the power switch, get through to the power.

③ Connect the multi-function syringe of dental unit to the water pipe.

④ Step on the foot switch.

⑤ Turn on the switch of the multi-function syringe, press the air or water into the water line in the machine, then the impurity blocked in the water line can be eliminated.

[Note3] If the scaling tip has been screwed on tightly and there is fine spray too, the following phenomena show that the scaling tip was damaged:

The vibrating intensity and the water atomization degree become weak obviously. When operating , there is some buzz when the scaling tip is working.

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

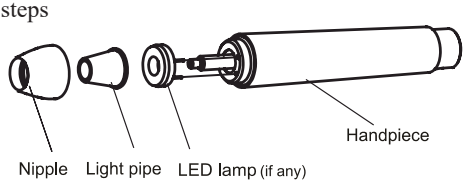
Tools: Torque wrench, tray, soft brush, clean and dry soft cloth.

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 (if any), 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 (if any) 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 opreation.

5.1.2 The handpiece, scaling tip and torque wrench must be sterilized before every treatment.

5.1.3 Don't screw the scaling tip when stepping on the foot switch.

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

5.1.5 Change a new one when the tip is 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 make the tip twist or rub it.

5.1.8 Don’t use impure water source. Never replace the distilled water with physidogical saline.

5.1.9 If use water source without hydraulic pressure, the water surface should be one meter higher than the head of the patient.

5.1.10 Be sure that the connecting end of handpiece and the socket of the

connector of cable are complete dried before handpiece installation.

5.1.11 Don't pull the cable emphatically in operating.

5.1.12 Please don’t rub or knock the handpiece.

5.1.13 After operation, turn off the power, then pull out the plug.

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

5.1.15 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.

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

5.1.17 As a professional company producing medical instruments' we are responsible for the safety only when maintenance' repair and change are done by “Woodpecker” company or our authorized distributors the replacing spare parts belong to ours and operating by the manual.

5.1.18 The screw thread of the scaling tips that produced by some other manufacturers may be coarse, rusty and collapsed , this will damage the screw thread of the handpiece irretrievably. Please use “Woodpecker”brand scaling tip.

5.1.19 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 patient who has hemophilia is not allowed to use this equipment.

5.2.2 The patient or doctor who uses heart pacemaker is 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 is installed or keep it in a cool , dry and ventilated place.

5.3.2 Don't put the machine together with the articles that is combustible poisonous,caustic, or 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 Please turn off the power switch and pull out the power line plug when the equipment is not used. If the machine is not used for a long time, please make it 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 forbidden in transportation. Lay it carefully and lightly and don’t invert it.

5.4.2 Don t put it together with dangerous goods.

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

6. After service

From the date this equipment has been sold, base on the warranty card , we will repair this equipment free of charge if it has quality problems , please refer to the warranty card for the warranty period.

7. Symbol instruction

WOODPECKER	Trademark	IPX0	Ordinary equipment
~	Alternating current	IPX1	Drip-proof
	Date of manufacture		Manufacturer
	Class II equipment		Type BF applied part
	Foot switch interface		Used indoor only
H_2O	Adjustment for the water flow	134°C	Can be autoclaved
~24V	24VAC power supply socket	H_2O 0.01-0.5MPa	Water entrance pressure
CE 0197	CE marked product	ON OFF	Power switch
	Follow Instructions for Use		
	Appliance compliance WEEE directive		
106kPa 70kPa	Atmospheric pressure for storage		
+55°C -20°C	Temperature limitation for storage	93% 10%	Humidity limitation 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 right 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

Guidance and manufacturer's declaration - electromagnetic emissions		
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.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	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.
RF emissions CISPR11	Class B	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.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

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
G 1	1-9
G 2	1-9
G 3	1-9
G 4	1-9
G 5	1-9
G 6	1-9
G 7	1-9
G 8	1-9
G 9	1-9
G 10	1-9
G 11	1-9

Periodontics	
Tip Model	Power
P1	1-6
P2L	1-2
P2LD	1
P2R	1-2
P2RD	1
P3	1-3
P3D	1-3
P4	1-3
P4D	1-3

Endodontics	
Tip Model	Power
E1	-
E2	-
E3	-
E3D	-
E4	-
E4D	-
E5	-
E5D	-
E8	-
E9	-
E10	-
E10D	-
E11	-
E11D	-
E14	-
E15	-

Cavity Preparation	
Tip Model	Power
SB1	1-6
SB2	1-6
SB3	1-6
SBL	1-6
SBR	1-6

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