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WOODPECKER

0197

Please read this manual before operating

U600 LED ULTRASONIC SCALER

INSTRUCTION MANUAL



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 indisensable equipment for teeth disease prevention and treatment.

The ultrasonic scaler U600 LED has scaling, perio, endo and auto-water supply functions with the following features:

1.1.1 The handpiece is detachable and can be autoclaved to high temperature 134°C and high pressure 0.22Mpa.

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

1.1.3 Digital control, 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 structural composition

Ultrasonic scaler U600 LED is composed of electrocircuit, water way and ultrasonic transducer.

1.2.3 Scope of application

Ultrasonic scaler U600 LED is used for the dental calculus elimination and root canal treatment.

1.3 The main technical specifications

1.3.1 Technical specifications of ultrasonic scaler

a) Main unit input: 220-240V~ 50Hz/60Hz 150mA
b) Output primary tip vibration excursion: ≤90μm
c) Output half-excursion force: <2N
d) Output tip vibration frequency: 28kHz±3kHz
e) Output power: 3W to 20W
f) Main unit fuse: T0.5AL 250V
g) Water pressure: 0.01MPa to 0.5MPa
h) Weight of main unit: 1.8kg
i) Operating mode: Continuous operation
j) Type of protection against electric shock: class II equipment
k) Degree of protection against electric shock: Type BF applied part
l) Applied part of the equipment: handpiece and tip
m) Degree of protection against harmful ingress of water: Ordinary equipment, the foot switch is drip-proof equipment (IPX1)
n) Degree of safety of application in the presence of a Flammable Anesthetic Mixture with air, Oxygen or Nitrous Oxide: Equipment not suitable for being used

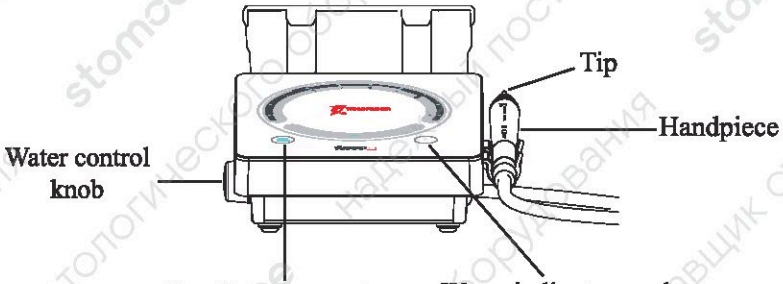
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in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.

1.4 Instruction of the main components

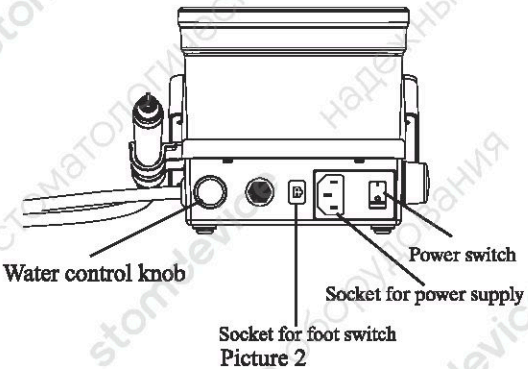
Instruction and component sketch map

1.4.1 Front of the main unit sketch map



Picture 1

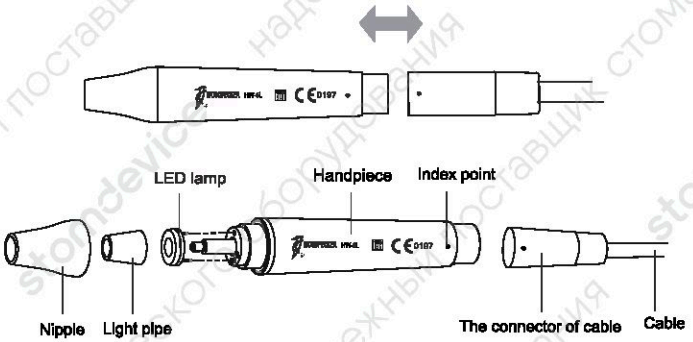
1.4.2 Back of the main unit sketch map



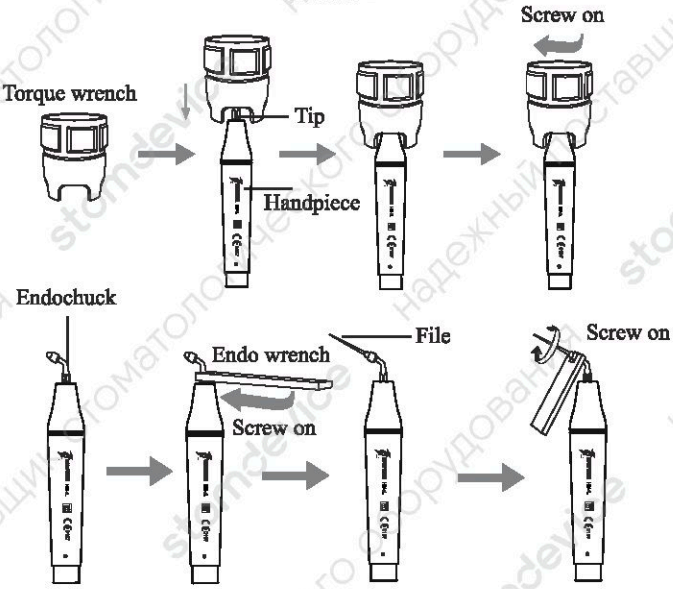
Picture 2

1.4.3 Instruction of using wrench

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Picture 3



Picture 4

2. Installation and adjustment

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, take the main unit out of the box, and put it on the the stable plane facing to the operator.

2.1.2 Turn the water control knob to the max according to the picture 1

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direction, Do not screw it over tight in case of damage. [note 1]

2.1.3 Insert the plug of the foot switch to its socket. (see picture 2)

2.1.4 Connect one end of the water pipe to the water entrance, and the other end to the clean water sourse. (see picture 2)

2.1.5 Choose the scaling tip according to the requirement, and fix the scaling tip with the wrench. (see picture 4)

2.1.6 Turn on the power switch, the power indicator lighted and the machine is ready for work. Touch panel is applied to this machine, water supply mode or power can be adjusted by directly touching the water supply mode identification or power indicator on the touch panel.

2.1.7 Under normal working condition, the frequency of the tips is very high, light touch and a certain to-and-fro motion will eliminate the tartar without obvious heating, overexetion and overatay are forbidden.

2.1.8 Vibrating intensity: Adjust the vibrating intensity according to your need, usually adjust to the middle grade, and adjust the vibrating during the clinical treatment according to the patient's sensitivity and the rigidity of the tartar.

2.1.9 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.

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

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

2.1.12 Be sure not to make the end of the tip touch the teeth vertically, and not use too much pressure when the tip touch the surface of the teeth, in order not to hurt the teeth and the tip.

2.1.13 After finishing operation, keep the machine working for 30 seconds with the water supply to clean the handpiece and the tip.

2.1.14 Unscrew the scaling tip and sterilize it.

Note: Don't screw the scaling tips when stepping on the foot switch, and the machine is working.

3. Maintenance and sterilization

3.1 All the scaling tips ,Handpiece,wrench can be autoclaved.

3.1.1Autoclaved under high temperature, pressure, time:
134°C, 2.0bar~2.3bar (0.20MPa~0.23MPa), 4min.

3.2 The tip and wrench can be cleaned by ultrasonic cleaner.

3.3 Troubles shotting

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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.
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 Picture 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 Picture 4).
	The tip is loose because of vibration.	Screw on the tip tightly (See Picture 4).
	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.

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Fault	Possible cause	Solutions
There is water seeping from the coupling between the handpiece and cable.	The waterproof "O"ring is damaged.	Change a new waterproof "O"ring.
There is water flow out when turn off the power.	There is impurity in the solenoid valve.	Contact with the local distributor or manufacturer.
The handpiece generates heat.	The amount of spouting water is too little.	Turn the water control switch to a higher grade [note 1].
	The potentiometer is broken.	Change a new one.
The amount of spouting water is too little.	The water control knob is a low grade.	Turn the knob to a high grade [note 1].
	The water pressure is not enough.	Enhance the water pressure.
	The water pipe is jammed.	Clean water pipe with multi-function syringe [note2].
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.
LED light don't work	Poor contact	Contact tightly
	Something wrong with LED light	Change a new one
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 local dealer or manufacturer.

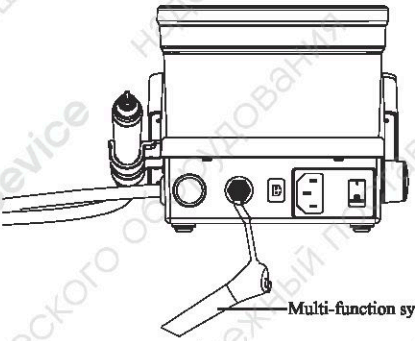
3.4 Notice

[Note 1] The water control knob can adjust the water volume according to the symbol.

[Note 2] To clean the water pipe with the multi-function syringe of the dental unit (see picture 5):

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picture 5

a) Snip the water pipe at a distance of 10cm to 20cm from the water entrance.

b) Turn on the power switch, get through to the power.

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

d) Screw off the scaling tip or pull out the handpiece.

e) Step on the foot switch.

f) Turn on the switch of the multi-function syringe, press the air or water into the water pipe to clean and eliminate the impurity.

[Note 3] 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 pulverization degree become weak obviously.

b) During operating, there is some buzz when the scaling tip is working.

3.5Cleaning mode

It is suggested to wash and disinfect the water pipe after scaling everyday.

The "Cleaning mode" can wash and disinfect the water pipe, reducing the crystal substance and bacterias in water pipe.

Operation

1.Put distilled water or mineral substance into water tank.

2.Press the automatically water supply button and outside water button at the same time (1s) to start the "Cleaning mode" after buzzer beeps. The button of automatic water supply mode would flashes and others buttons will go out.

3.Link the connector and the handpiece with the drainage device.

4.Step the pedal, the device would start self-cleaning. After that the pedal could be loosen.

5.After cleaning for 30s, the device would stop self-cleaning. Or u can stop by step the pedal again or press the automatic water supply button.

6.After cleaning, press the automatically water supply button and outside water button at the same time (1s) to exit the "Cleaning mode" after buzzer beeps.

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4. Precaution

4.1 usage notice

4.1.1 Keep the scaler clean before and after operation.

4.1.2 The scaling tip, wrench and handpiece must be sterilized before each treatment.

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

4.1.4 The scaling tip must be fastened. There must be fine spray coming out from the tip when operating.

4.1.5 Change a new one when the tip is damaged or worn excessively.

4.1.6 Don't twist or rub the tip.

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

4.1.8 Don't use impure water source, and be sure not to use normal brine instead of pure water source.

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

4.1.10 Don't knock or rub the handpiece.

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

4.1.12 When using the equipment, please keep the water get through smoothly, otherwise patient's tooth surface would be injured by overheat in the handpiece.

4.1.13 After operating, turn off power source supply, and then pull out the plug.

4.1.14 As a professional manufacturer of medical instruments, 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 "WOODPECKER" and operated correctly according to instruction manual.

4.1.15 The screw thread of the scaling tips produced by other manufacturers maybe coarse, rusty and collapsed, which will damage the screw thread of the handpiece irretrievably. Please use "WOODPECKER" brand scaling tip.

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

4.2 Contraindication

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

4.2.2 The patient or doctor who equips with heart pacemaker is forbidden to use this equipment.

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

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4.3 Storage and maintenance

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

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

4.3.3 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.

4.3.4 Please turn off the power switch and pull out the power 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.

4.4 Transportation

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

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

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

4.5 Working condition

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

4.5.2 Relative humidity: 30% ~75%

4.5.3 Atmosphere pressure: 70kPa to 106kPa

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

5. After service

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

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

6. 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

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Adjustment for the water flow



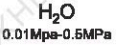
Can be autoclaved



Mode of outside-water system



Mode of auto-water system



Water entrance pressure



FDA marked product



CE marked product



Consult the accompanying documents



Adjustment for the water flow，in Mode of auto-water system



Appliance compliance WEEE directive



Atmospheric pressure for storage



Temperature limitation for storage



Humidity limitation for storage



Authorised Representative in the EUROPEAN COMMUNITY

7. Environmental protection

Please dispose according to the local laws.

8. 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.

9. European authorized representative

EC REP MedNet GmbH
Borkstrasse 10 · 48163 Muenster · Germany

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10. EMC - Declaration of conformity

Guidance and manufacturer's declaration - electromagnetic emissions		
The models U600, U600 LED are intended for use in the electromagnetic environment specified below. The customer or the user of the models U600, U600 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 U600, U600 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 models U600, U600 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 U600, U600 LED are intended for use in the electromagnetic environment specified below. The customer or the user of the models U600, U600 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	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 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 U600, U600 LED require continued operation during power mains interruptions, it is recommended that the models U600, U600 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.			

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Guidance & Declaration - Electromagnetic Immunity

The models U600, U600 LED are intended for use in the electromagnetic environment specified below. The customer or the user of the models U600, U600 LED should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the models U600, U600 LED, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	*3V*	$d=[3,5/V_1]\times P^{1/2}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	*3 V/m*	$d=1.2\times P^{1/2}$ 80 MHz to 800 MHz $d=2.3\times P^{1/2}$ 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 U600, U600 LED are used exceeds the applicable RF compliance level above, the model U600, U600 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 U600, U600 LED.

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

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Recommended separation distances between portable and mobile RF communications equipment and the models U600, U600 LED

The models U600, U600 LED are intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the models U600, U600 LED can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the models U600, U600 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 of transmitter 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.

11. 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.

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TABLE OF OPERATING POWER OF THE TIPS

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

Periodontics	
Tip Model	Power
P1	1-10(P)
P2L	1-3(P)
P2LD	1-2(P)
P2R	1-3(P)
P2RD	1-2(P)
P3	1-6(P)
P3D	1-6(P)
P4	1-6(P)
P4D	1-6(P)

Endodontics	
Tip Model	Power
E1	1-3(E)
E2	1-3(E)
E3	1-6(E)
E3D	1-3(E)
E4	1-6(E)
E4D	1-3(E)
E5	1-6(E)
E5D	1-3(E)
E8	1-10(E)
E9	1-10(E)
E10	1-6(E)
E10D	1-6(E)
E11	1-6(E)
E11D	1-6(E)
E14	1-3(E)
E15	1-3(E)

Cavity Preparation	
Tip Model	Power
SB1	1-10(P)
SB2	1-10(P)
SB3	1-10(P)
SBL	1-10(P)
SBR	1-10(P)

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