Endo Gold Endo Motor

INSTRUCTION MANUAL

Please read this manual before operating

ZMN-SM-052 V1.8 - 20231010

GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.

Contents

Preface

Guilin Woodpecker Medical Instrument Co., Ltd is a professional manufacturer researching, developing, and producing dental products. Woodpecker owns a sound quality control system. Guilin Woodpecker Medical Instrument Co., Ltd has two brands, Woodpecker and DTE. Its main products include Ultrasonic Scaler, Curing light, Apex locator, Ultrasurgery, Endo Motor, etc.

1 Product introduction

1.1 Product description

Endo Gold is mainly used in Endodontic treatment. During root canal preparation procedure, it is used to mold and clean the root canal.
Features:
a) Wireless handpiece enables more convenient operation.
b) Adopt real-time feedback technology and dynamic torque control, effectively preventing needle breakage.
c) Wireless handpiece enables more convenient operation.
d) Storage of 9 user-defined modes allows invocation at any time.
Under each mode, Continuous Rotation Mode, Reciprocating Motion Mode, and Reverse Rotation are for options.

1.2 Model and specification

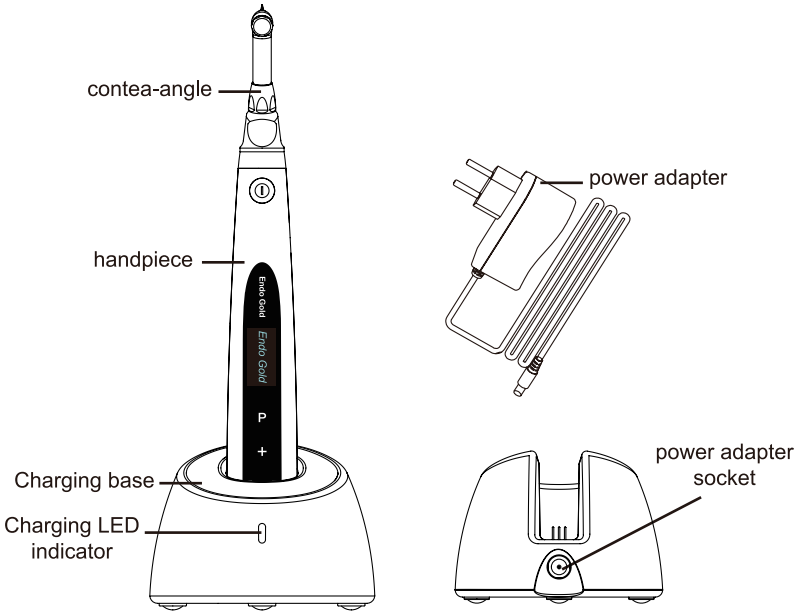
Endo Gold
Please refer to packing list for device configurations.

1.3 Scope of application

1.3.1 The device is suitable for root canal molding and cleaning in endodontic treatment.
1.3.2 The device must be operated in hospital and clinic by the qualified dentists.

1.4 Performance and composition

The device is composed of charging base, handpiece, contra-angle, and power adapter, etc.



1.5 Contraindication

Patients with implanted pacemakers (or other electrical equipment) who are warned not to use household appliances such as electric razors, hair dryers, etc. are not recommended to use this device.

1.6 ⚠ Warnings

1.6.1 Please carefully read this Instruction Manual before first operation.

1.6.2 This device should be operated by professional and qualified dentist in qualified hospital or clinic.

1.6.3 Do not directly or indirectly place this device near heat source. Operate and store this device in reliable environment.

1.6.4 This device requires special precautions regarding electromagnetic compatibility (EMC) and must be in strict accordance with the EMC information for installation and use. Do not use this equipment especially in the vicinity of fluorescent lamps, radio transmitting devices, remote control devices, handheld and mobile high-frequency communication devices.

1.6.5 Long time use of Reciprocating Motion Mode may result in handpiece overheat, thus it should be left to cool for use. If the handpiece is overheated frequently, please contact local distributor.
1.6.6 Please use the original contra-angle. Otherwise it will not be used or cause adverse consequences.
1.6.7 Please do not make any changes to the device. Any changes may violate safety regulations, causing harm to the patient. There will be no promises of any modification.
1.6.8 Please use original power adapter. Other power adapter will result in damage to lithium battery and control circuit.
1.6.9 The handpiece cannot be autoclaved. Use disinfectant of neutral pH value or ethyl alcohol to wipe its surface.
1.6.10 Before the contra-angle stopping rotating, do not press the push cover of contra-angle. Otherwise the contra-angle will be broken.
1.6.11 Before the handpiece stopping rotating, do not remove the contra-angle. Otherwise the contra-angle and the gear inside handpiece will be broken.
1.6.12 Please confirm whether the file is well installed and locked before starting the handpiece.
1.6.13 The file of Continuous Rotation Mode shall not be used under Reciprocating Motion Mode and vice versa.
1.6.14 Please set torque and speed as per the recommended specifications of file manufacturer.
1.6.15 The Continuous Rotation Mode matches continuous rotating files; the Reciprocating Motion Mode matches reciprocating files (i.e. WAVE ONE); the Reverse Rotation Mode is adopted to pick the continuous rotating files out while the file accidentally gets stuck in the root canal.

1.7 Device safety classification

1.7.1 Type of operation mode: Continuous operating device
1.7.2 Type of protection against electric shock: Class II equipment with internal power supply
1.7.3 Degree of protection against electric shock: BF type applied part
1.7.4 Degree of protection against harmful ingress of water: Ordinary equipment (IPX0)
1.7.5 Degree of safety application in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide: Equipment cannot

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

1.7.6 Applied part: contra-angle.

1.7.7 The contact duration of applied part: 1 to 10 minutes.

1.7.8 The temperature of the surface of applied part may reach 46.6℃.

1.8 Primary technical specifications

1.8.1 Battery

Lithium battery in handpiece: 3.7V /2000mAh

1.8.2 Power adapter

Input: ~100V-240V 50Hz/60Hz 0.5-0.2A

Output: DC5V/1A

1.8.3 Torque: 0.6Ncm-5.0Ncm(6mNm ~ 50mNm)

1.8.4 Rotate speed: 100rpm~1000rpm

1.9 Environment parameters

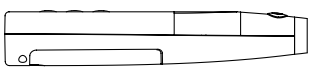
1.9.1 Environment temperature: +5℃ ~ +40℃

1.9.2 Relative humidity: 30% ~ 75%

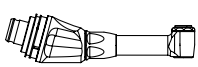
1.9.3 Atmospheric pressure: 70kPa ~ 106kPa

2 Installation

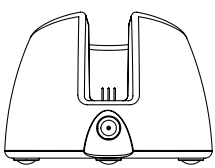
2.1 Basic accessories of product



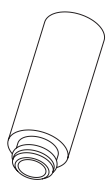
Motor handpiece



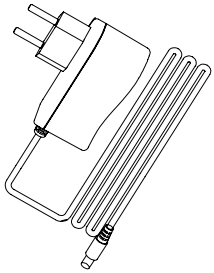
Contra-angle



Charging base



Lubricator



Power adapter

2.2 Instructions for contra-angle

2.2.1 The contra-antgle adopts precision gear transmission, and the transmission ratio is 1:1. The material for contra-angle is copper. (Model:CA001)

2.2.2 Before the first use and after treatments, please clean and disinfect contra-angle with disinfectant of neutral PH value. After disinfection, lubricate it with specific cleaning oil. Finally, sterilize it under high temperature and high pressure (134℃, 2.0bar~2.3bar (0.20MPa~0.23MPa)).

2.2.3 The contra-angle can only be used cooperatively with this device. Otherwise the contra-angle will be damaged.

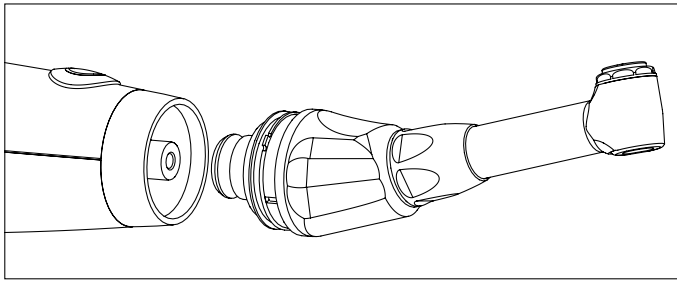
2.3 Installation and removal of contra-angle

2.3.1 Installation

Align the positioning pin of contra-angle with the positioning hole of handpiece, horizontally pushing the contra-angle. A click sound indicates that it is well installed. By aligning those three pins on contra-angle with those six holes on handpiece, the contra-angle can be installed in different angle. (As shown below)

2.3.2 Removal

Pull out the contra-angle horizontally when the motor handpiece does not start.



⚠ Warnings

a) Before plugging in or pulling out contra-angle, please first stop the handpiece motor.

b) After installation, please check and confirm that the contra-angle has been well installed.

2.4 Installation and removal of file

2.4.1 Installation of file

Before starting the device, plug the file into the hole of contra-angle head. While plugging, slightly screw the file with one hand, and press the push cover of contra-angle with another hand.

⚠ Warnings

Please use standard file. The maximum length of the file is 31mm. And the appropriate minimum length of file handle is 11mm with 2.334-2.35 mm handle diameter, which meet the requirements on Class Ihandle in ISO 1797-1 Standard.

After plugging the file into contra-angle, let go the hand on push cover to assure that the file cannot be taken out.

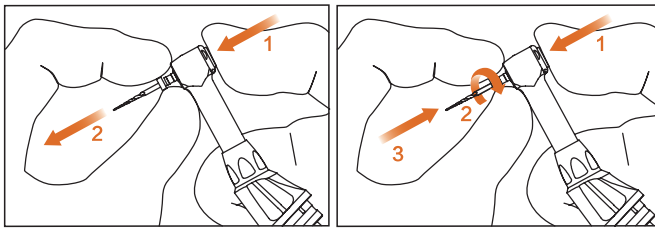
2.4.2 Removal of file

Pressing the push cover, and then directly pull out the file.

⚠ Warnings

a) Before plugging and pulling out the file, the handpiece must be stopped.

b) After the file is well installed, without pressing the push cover, the file should be firmly locked while slightly pulling the file.



2.5 Installation and removal of disposable insulation sleeves

2.5.1 Installation

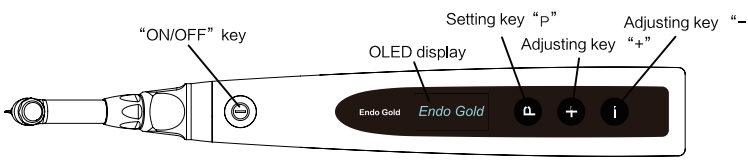
Before each use of the handpiece and after the handpiece is cleaned and disinfected,put on a disposable isolation sleeve. Take the isolation sleeve out of the isolation sleeve box, then insert the isolation sleeve into the motor handpiece from the thin end of the handpiece, and install the isolation sleeve until there is no obvious wrinkle.

2.5.2 Removing

After each use, slowly pull the isolation sleeve from the thin end of the handpiece.

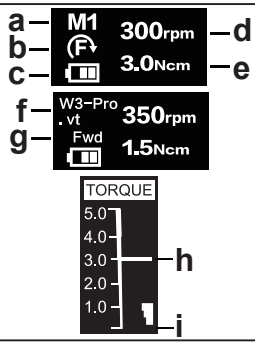
3 Function and operation of product

3.1 Schematic drawing of handpiece



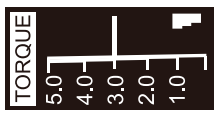
Schematic drawing of handpiece

3.2 OLED display

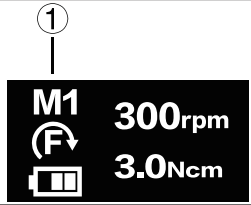
	a) Customized program sequence number 1-9, totally 9 programs b) Operation mode c) Battery consumption d) Set speed e) Set torque f) File system g) Operation mode h) Torque setting i) Real-time torque

4 Operation instruction

4.1 Starting and Stopping

a) Under the power off state of handpiece, press key, and then the handpiece will enter Standby mode.	 Standby interface
b) Under Standby mode, press key, and then the handpiece will enter Operating mode. **Note** The handpiece motor cannot enter working state while it is in the base. c) Press the key again, and then the handpiece backs to Standby mode.	 Continuous Rotation Mode interface

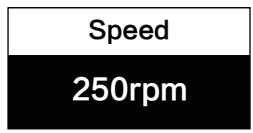
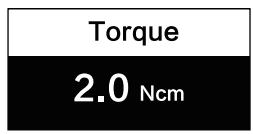
4.2 Selecting memory

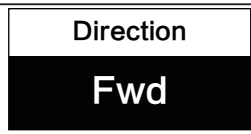
a) Endo Gold allows 9 memorizing programs. Under standby state, please press key ⊕ or ⊖ to switchover those memorizing programs. And the serial number will change correspondingly.	

4.3 Speed setting, torque setting, and operation mode setting

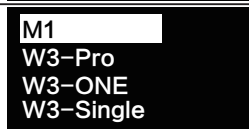
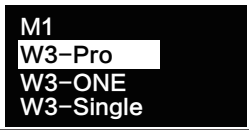
Under standby state, short press key Ⓟ to enter speed setting, torque setting, and operation mode setting interfaces.

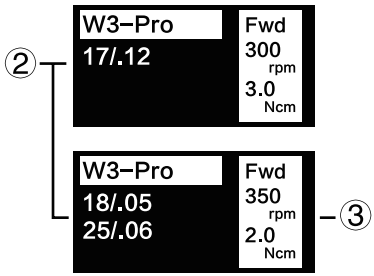
In setting interface, it will automatically back to Standby interface after 5s without operation. Press ⏻ key to enter Standby interface.

Speed setting: In the Speed Setting Interface, press ⊕ to increase speed, press ⊖ to decrease speed, and long press to fast increase or fast decrease speed.	
Torque setting: In the Torque Setting Interface, press ⊕ to increase torque, press ⊖ to decrease torque, and long press to fast increase or fast decrease torque.	

Operation Mode Setting: In the Operation Mode Setting Interface, press ⊕ key or ⊖ key to switch operation mode. Continuous Rotation Mode, Reverse Rotation Mode and Reciprocating Motion Mode are for options. There will be a tick indication while setting to Reverse Rotation Mode. Long press to realize fast modes handover. ⚠**Note** The speed and torque cannot be adjusted under Reciprocating Motion Mode.	 Continuous Rotation Mode  Reverse Rotation Mode  Reciprocating Motion Mode

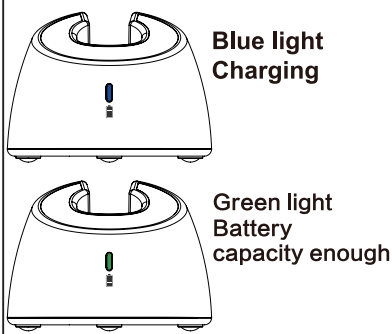
4.4 Preset programs

Select the self-defining program that need to be replaced.	
Long press key Ⓟ to get into the interface of file system. Press key ⊕ or key ⊖ to select needed file system. Press the key Ⓟ to confirm, and press the ⏻ key to log out.	 

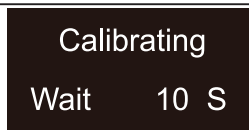
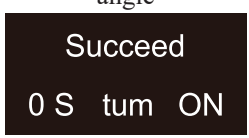
Press key Ⓟ to get into the interface of corresponding file system. Press key ⊕ or key ⊖ to select needed file model (②), the corresponding rotation direction, speed, and torque value (③). Press the key Ⓟ to confirm, and press the ⏻ key to log out.	
After selecting the file system, the selected one will replace the former program.	

4.5 Battery Charging

If the battery icon turns into display that as the picture shown, it indicates that the battery capacity is very low. Please charge.	
When the battery capacity is the too low, the device may indicate “Low Battery!” and automatically power off.	

Connect the power adapter with the base. Confirm that it is well connected, and then place the handpiece into the base. If the indicator light on base turns blue, it indicates that it is charging. If the indicator light on base turns green, it indicates that the battery capacity is enough, and there is no need to charge. After charging, please unplug the power adapter. **Note** Please use the original power adapter for charging.	

4.6 Contra-angle calibration setting

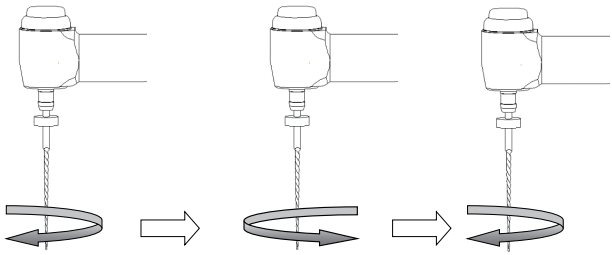
After replacement of contra-angle, the contra-angle shall be calibrated before use. In Standby Interface, first long press setting key and then long press for 2s to enter Calibration Interface of contra-angle. After 15s's countdown, the interface of successful calibration will appear. One more seconds later, it will switch to Standby Interface.	 Calibration Interface of Contra-angle  Interface of Successful Calibration

4.7 Power-off

In Standby Interface, the handpiece would automatically shut down after 5 minutes without any button-pressing operation. The handpiece will also automatically shut down while it is put into the charging base. In Standby Interface, long press setting key , and then long press Adjusting key , finally the device will automatically shut down 2s later.

4.8 Protective function of automatic reverse

During operation, if the load value exceeds the preset torque value, the file rotation mode will automatically change to Reverse Mode. And the file would return to normal rotation mode when the load is below the preset torque value again.



a) b) c)

a) Clockwise rotation
Load value is lower than preset torque value
b) Counterclockwise rotation
Load value is higher than preset torque value
c) Clockwise rotation
Load value is lower than preset torque value again

Note

a) Protective function of automatic reverse is ONLY suitable for Continuous Rotation Mode.
b) This function is forbidden under Reciprocating Motion Mode and Reverse Rotation Mode.
c) When the handpiece battery indicator indicates a low battery capacity, the low battery capacity is insufficient to support the handpiece to reach the limit torque value, that is, the auto-reverse function will not work properly. Please charge it in time.
d) If the motor is under load all the time, the machine may stop automatically as a result of overheat protection. If it happens, turn off the handpiece for a while until the temperature drops.

5 Oiling of contra-angle

Only the original oil injection nozzle can be used for oiling of contra-angle. After disinfection of contra-angle and before sterilization, oiling should be conducted under high pressure and high temperature.

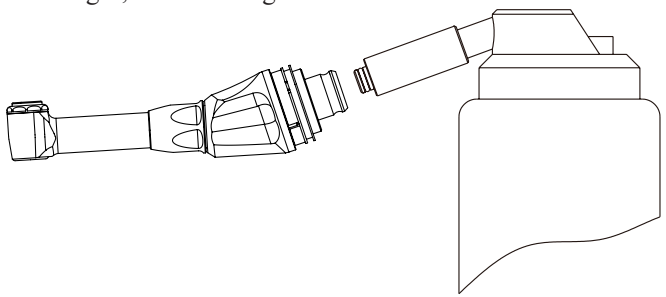
1.Firstly, screw the injecting nozzle into jet of oil bottle. (Around 10 circles)
2.Next, plug the nozzle into the end part of contra-angle, and then grease the contra-angle for 2-3s till the oil flow out of contra-angle head part.
3.Vertically place the end part of contra-angle or tilt the contra-angle to let go the redundant oil under gravity.

⚠ Warnings

Handpiece cannot be filled with oil.

⚠ Cautions

a.To avoid the contra-angle from flying out for the pressure, use hand to safely hold the contra-angle while greasing.
b.Do not use a swirling nozzle. Swing nozzle can only be used for injection of gas, not for oiling.



6 Reprocessing process

6.1 Foreword

For hygiene and sanitary safety purposes,the Motor Handpiece must be cleaed and disinfection,the contra-angle and the protective silicon cover must be cleaned, disinfected and sterilized before each usage to prevent any contamination. This concerns the first use, as well as all subsequent uses.

6.2 General recommendations

6.2.1 Use only a disinfecting solution which is approved for its efficacy (VAH/DGHM-listing, CE marking, FDA and Health Canada

approval) and in accordance with the DFU of the disinfecting solution manufacturer.

6.2.3 Do not place the contra-angle in a disinfectant solution or in an ultrasonic bath.

Do not use chloride detergent materials.

6.2.4 Do not use bleach or chloride disinfectant materials.

6.2.5 For your own safety, please wear personal protective equipment (gloves, glasses, mask).

6.2.6 The user is responsible for the sterility of the product for the first cycle and each further usage as well as for the usage of damaged or dirty instruments where applicable after sterility.

6.2.7 The water quality has to be convenient to the local regulations especially for the last rinsing step or with a washer-disinfector.

6.2.8 To sterilize the endodontic files, refer to the manufacturer's instructions for use.

6.2.9 The contra-angle needs to be lubricated after cleaning and disinfection, but before sterilization.

6.3 Cleaning and disinfection steps for the motor handpiece, the AC adapter and the base.

Before and After each use, all the objects that were in contact with infectious agents should be cleaned using towels impregnated with a disinfecting and detergent solution (a bactericidal, fungicidal and aldehyde free solution) approved by VAH/DGHM-listing, CE marking, FDA and Health Canada.

⚠ Warning: Do not sterilize the motor handpiece, the AC adapter and the base.

6.3.1 Pre-Op processing

Before each use, the handpiece, charger, and base must be cleaned and disinfected. The specific steps are as follows:

⚠ Warning: The handpiece, charger, and base cannot be cleaned and disinfected with automatic equipment. Manual cleaning and disinfection is required.

6.3.1.1 Manual cleaning steps:

1. Take out the handpiece, charger, and base on the workbench.

2. Wet the soft cloth completely with distilled water or deionized water, and then wipe all the surfaces of the components such as the handpiece, charger, base, etc. until the surface of the component is not stained.

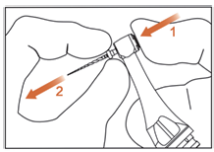
3. Wipe the surface of the component with a dry soft nap-free cloth.
4. Repeat the above steps at least 3 times.
Note:
a)Use distilled water or deionized water for cleaning at room temperature.
6.3.1.1 Manual disinfection steps:
1. Soak the dry soft cloth with 75% alcohol.
2. Wipe all surfaces of headpiece, charger, base and other components with a wet soft cloth for at least 3 minutes.
3. Wipe the surface of the component with a dry soft nap-free cloth.
Note:
a) The cleaning and disinfection must be performed within 10min before use.
b) The disinfectant used must be used immediately, no foaming is allowed.
c) In addition to 75% alcohol, you can use non-residue disinfectants such as Oxytech from Germany, but you must respect the concentration, temperature and time specified by the disinfectant manufacturer.
d) After cleaning and disinfecting the handpiece, you must install a disposable isolation sleeve before use and repeat steps 1, 2 and 3 to clean the disposable isolation sleeve(For detailed installation steps, see section 2.7).
6.3.2 Post-Op processing
After each use, clean and disinfect the handpiece, charger, and base within 30 minutes. The specific steps are as follows:
Tools: Nap-free soft cloth, tray
1. Remove the contra-angle from the handpiece, place it in a clean tray, and then remove the disposable isolation sleeve from the handpiece.
2. Soak the nap-free soft cloth with distilled water or deionized water, and then wipe all the surfaces of the components such as the handpiece, charger, base, etc. until the surface of the component is not stained.
3. Wet the dry soft cloth with 75% alcohol, and then wipe all surfaces of the handpiece, charger, base and other components for 3 minutes.
4. Put the handpiece, charger, base and other components back into the clean storage area.
Note:
a) The cleaning and disinfection must be performed within 10min before use.

b) The disinfectant used must be used immediately, no foaming is allowed.
c) In addition to 75% alcohol, you can use non-residue disinfectants such as Oxytech from Germany, but you must respect the concentration, temperature and time specified by the disinfectant manufacturer.

6.4 The cleaning, disinfection and sterilization of contra-angle, protective silicon cover as follow.

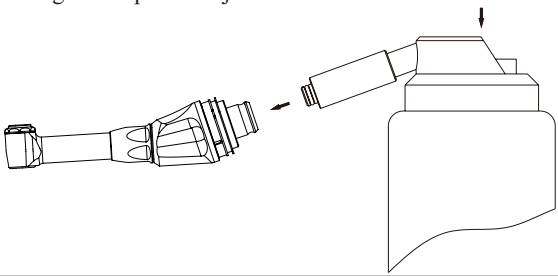
Unless otherwise stated, they will be hereinafter referred to as "products".

⚠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. The products may not be exposed to temperature above 138℃.
Resistance to sterilizing procedure	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 products is 250 times.
Preparation at the Point of Use	The post-operative process must be carried out immediately, no later than 30 minutes after the completion of the operation. The steps are as follows: Remove the shanks/files and disconnect the contra-angle handpiece from Motor handpiece. Remove gross soiling of the instrument with cold water (<40°C) immediately after use. Don't use hot water (>40°C) as this can cause the fixation of residuals which may influence the result of the reprocessing process.
Transportation	The products should be safety stored and transported to the point of reprocessing to avoid any damage and environment pollution.

Preparation for reprocessing	The products must be reprocessed in a disassembled state. a) Press the push-button and pull out the shank/file. b) When removing the protective silicon cover, pull it straight out slowly. c) When inserting and removing the contra-angle, turn thehandpiece power off beforehand. Disassembling steps  (a)  (b)  (c)
Pre-cleaning	Tools: tray, soft brush, clean and dry soft cloth Perform manual pre-cleaning until the handpiece is visually clean. Rinse the chuck of bur with running water for at least 10 seconds. Clean the surface with a soft bristle brush. Note: The water temperature should not exceed 40℃ during the washing stage, otherwise the protein will solidify and be difficult to remove.

Cleaning	Regarding cleaning/disinfection, rinsing and drying, it is to distinguish between manual and automated reprocessing methods. Preference is to be given to automated reprocessing methods, especially due to the better standardizing potential and industrial safety. Automatic cleaning The washer-disinfector should meet the requirements of the ISO 15883. Place the products in the washer-disinfector carefully. Ensure that products can not move freely in the washer-disinfector. The contra-angle handpiece are not permitted to contact with each other. Start the program: • 4min pre-washing with cold water(<40℃); • Emptying • 5 min washing with a mild alkaline cleaner at 55℃; • Emptying • 3 min neutralizing with warm water(>40℃); • Emptying • 5 min intermediate rinsing with warm water(>40℃); • Emptying • Drying the device at 80℃ for 15min The automated cleaning processes have been validated by using 0.5% neodisher MediClean forte(Dr. Weigert)
Disinfection	Automated Thermal Disinfection in washer/disinfector under consideration of national requirements in regards to A0 value (see EN 15883). A disinfection cycle of 5 min disinfection at 93°C has been validated for the device to achieve an A0 value of 3000.

Drying	Drying of outside of instrument through drying cycle ofwasher-disinfector. If necessary, additional manual drying can be performed through lint free towel. Insufflate cavities of instruments by using sterile compressed air. If your washer-disinfector does not have an automatic drying function, please dry the device after cleaning and disinfection. The drying method as below: 1)Spread a clean white paper (white cloth) on the flat table, place the products on the white paper (white cloth), and then dry the contra-angle with filtered dry compressed air (maximum pressure 3 bar). When no liquid is sprayed on the white paper (white cloth), it indicates that the products is completely dry. 2)The device can also be dried directly in a medical drying cabinet (or oven). The recommended drying temperature is 80 ℃ and the time should be 15minutes. Note: 1)Dry the products repeatedly if necessary (refer to section "Drying"). 2)The air used for drying must be filtered by HEPA. 3)The device should be dried in a clean area. 5)The drying temperature should not exceed 137 °C.
Maintenance	1. Functional Test and Visual inspection Visually inspect the cleanliness of the Handpiece. Perform Functional test according to instructions of use. If there is still visible stain on the device after cleaning, the entire cleaning process must be repeated. Before packaging and sterilization, make sure that the contra-angle handpiece has been maintained acc. to manufacturer's instruction. If the device is obviously damaged, smashed, detached, corroded or bent, it must be discarded and not allowed to continue to be used. 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. 2. Use lubricant to lubricate the handpiece and dried it prior to sterilization.

	Aim the nozzle of lubricant bottle to the air hole at the end of the contra-angle handpice to inject oil for 1-2 seconds. 
Packaging	The products should be quickly packaged in a medical sterilization bag (or special holder, sterile box). Precautions 1) Only use a legally marketed or a FDA cleared sterilization pouch; 2) The package should withstand high temperature of 137 °C and has sufficient steam permeability; 3) The packaging environment and related tools must be cleaned regularly to ensure cleanliness and prevent the introduction of contaminants; 4) Avoid contact with different metals when packaging.
Sterilization	Sterilization of instruments by applying a fractionated pre-vacuum steam sterilization process (according to EN 285/EN 13060/ EN ISO 17665) under consideration of the respective country requirements. Minimum requirements: at least 4 min at 132°C/134 °C (in EU: 5 min at 134 °C, in US: 4 min at 132 °C) Maximum sterilization temperature: 137°C Flash sterilization is not allowed on lumen instruments!
Storage	Sterilized devices should be stored in a dry, clean and dust-free environment, refer to label and instructions for use.

7 Troubleshooting

Failure	Possible cause	Solutions
There is continuous beep sounds after starting the handpiece.	The continuous beep sound is indicating that the handpiece is under reverse rotation state.	Stop the handpiece and change the operating mode to Continuous Rotation Mode.

Contra-angle calibration failure.	1.Calibration failure caused by strong resistance of contra-angle.	1.Recalibration. 2.Clean the contra-angle, and recalibrate after oil injection.
After plugging the handpiece into charging base, the charging indicator does not light.	The power adapter is not well connected.	Check whether the power adapter is well connected.
After plugging the handpiece into charging base, the charging indicator does not turn to blue.	1.The handpiece is not in place. 2.The handpiece is fully charged.	Plug the handpiece in place.
The time of endurance becomes shorter after charging.	Battery capacity becomes smaller.	Please contact local distributor or manufacturer.
The continuously rotating file is stuck at the root canal.	Incorrect specification setting. Too high load torque of file.	Choose Reverse Rotation Mode, start the handpiece, and take the file out.

8 Storage, maintenance and transportation

8.1 Storage

8.1.1 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.

8.1.2 Avoid the storage in a too hot condition. High temperature will shorten the life of electronic components, damage battery, reshape or melt some plastic.

8.1.3 Avoid the storage in a too cold condition. Otherwise, when the temperature of the equipment increases to a normal level, there will be dew that will possibly damage PCB board.

8.2 Maintenance

8.2.1 This device do not include accessories for repair usage, the repair should be carried out by authorized person or authorized after service center.

8.2.2 Keep the equipment in a dry storage condition.
8.2.3 Do not throw, beat or shock the equipment.
8.2.4 Do not smear the equipment with pigments.

8.3 Transportation

8.3.1 Excessive impact and shake should be prevented in transportation. Lay it carefully and lightly and don't invert it.
8.3.2 Don't put it together with dangerous goods during transportation.
8.3.3 Avoid solarization and getting wet in rain and snow during transportation.

9 Environmental protection

Please dispose according to the local laws.

10 After service

From the date this equipment has been sold, based on the warranty card, we will repair this equipment free of charge if there are quality problems. Please refer to the warranty card for the warranty period.

11 Symbol instruction

IPX0	Ordinary equipment	SN	serial number
	Date of manufacture		Manufacturer
	Type BF applied part		Class II equipment
	Used indoor only		Recovery
	Handle with care		Keep dry
93% 10%	Humidity limitation		Power on / off
106kPa 70kPa	Atmospheric pressure for storage	+55°C -20°C	Temperature limitation

Appliance compliance WEEE directive

Follow instructions for use

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 undertake legal responsibilities.

13 EMC-Declaration of comformity

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.

Technical Description Concerning Electromagnetic Emission

Table 1: Declaration - electromagnetic emissions

Guidance and manufacturer's declaration - electromagnetic emissions		
The model Endo Gold is intended for use in the electromagnetic environment specified below. The customer or the user of the model Endo Gold should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The model Endo Gold uses 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 model Endo Gold is suitable for used in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions lEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions lEC 61000-3-3	Complies	

Technical Description Concerning Electromagnetic Immunity

Table 2: Guidance & Declaration - electromagnetic immunity

Guidance & Declaration — electromagnetic immunity			
The model Endo Gold is intended for use in the electromagnetic environment specified below. The customer or the user of the model Endo Gold should assure that It is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) lEC 61000-4-2	±8kV contact ±2, ±4, ±8, ±15kV air	±8kV contact ±2, ±4, ±8, ±15kV 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 ±1kV for Input/ output lines	±2kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge lEC 61000-4-5	±0.5, ±1kV line to line ±0.5, ±1, ±2kV line to earth	±0.5, ±1kV 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 <5 % U_T (>95% dip in U_T.) for 1 cycle 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95 % dip in U_T) for 250 cycles	<5 % U_T (>95% dip in U_T.) for 0.5 cycle <5 % U_T (>95% dip in U_T.) for 1 cycle 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95 % dip in U_T) for 250 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the models Endo Gold requires continued operation during power mains interruptions, it is recommended that the models Endo Gold be powered from an uninterruptible power supply or a battery.

Power frequency (50/60 Hz) magnetic field lEC 61000-4-8	30A/m	30A/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.			

Table 3: Guidance & Declaration - electromagnetic immunity concerning Conducted RF & Radiated RF

Guidance & Declaration - Electromagnetic immunity			
The model Endo Gold is intended for use in.the electromagnetic environment specified below. The customer or the user of the models Endo Gold should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance

Conducted RF lEC 61000-4-6 Conducted RF lEC 61000-4-6 Radiated RF lEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 6 Vrms ISM frequency band 3 V/m 80 MHz to 2.7 GHz	3V 6V 3V/m	Portable and mobile RF communications equipment should be used no closer to any part of the models Endo Gold, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d=1.2\times P^{1/2}$ $d=2\times P^{1/2}$ $d=1.2\times P^{1/2}$ 80 MHz to 800 MHz $d=2.3\times P^{1/2}$ 800 MHz to 2.7 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 model Endo Gold is used exceeds the applicable RF compliance level above, the model Endo Gold should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model Endo Gold.
b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Table 4: Recommended separation distances between portable and mobile RF communications equipment and the model Endo Gold

Recommended separation distances between portable and mobile RF communications equipment and the model Endo Gold			
The model Endo Gold is intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the model Endo Gold can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model Endo Gold as 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 2,7GHz $d=2.3\times P^{1/2}$
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.			

Scan and Login website
for more information

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After-sales Service Dept.: 0773-5827898
E-mail: woodpecker4@glwoodpecker.com
Website: http://www.glwoodpecker.com

Cut along the dashed line

Warranty Card

Name of Customer		(Ⅰ) For Distributor
Address Details		
Postal Code		
Tel		
Model		
Motor Handpiece No.		
Contra-angle No.		
Purchase Date		
Contact Person		
Date	Maintenance Record	Repairer

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Distributor:

Seal

Warranty Card

Name of Customer		(Ⅱ) Return to Manufacturer
Address Details		
Postal Code		
Tel		
Model		
Motor Handpiece No.		
Contra-angle No.		
Purchase Date		
Contact Person		
Date	Maintenance Record	Repairer

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Distributor:

Seal

Warranty Instruction

Ⅰ Period validity:

The base, handpiece, power adapter have two years warranty period from the date of purchase. The contra-angle has one year warranty period. Other spare parts have six months warranty period.

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 on product that caused by users' unexpected drop or impact to product.
4. The damage caused by unadvisable transportation or preservation.
5. There isn’t the seal of distributor or the warranty card isn’t filled in completed.

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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.