CE 0123

Dental Electric Motor Instruction Manual

Thank you for purchasing the ES5, ES5+, ES5 Pro, and ES5 Pro+ Dental Electric Motors produced by Guilin Woodpecker. In order to ensure the correct use of the machine, we recommend that you carefully read this Manual about installation, operation, maintenance and inspection before use. For your convenience, it is recommended that you keep this Manual in a readily accessible place.

ZMN-SM-719 V1.1-20230301

GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.

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Preface

Guilin Woodpecker Medical Instrument Co., Ltd. is a high-tech enterprise in researching, developing, producing and selling dental products. It owns a sound quality control system. The main products include: Ultrasonic Scaler, Curing Light, Apex Locator, Ultrasurgery, Endo Motor, Dental Electric Motor, etc.

1 Introduction

Dental electric motor is used for driving dental handpieces for dental surgery.

1.1 Precautions before operation

Dangers:

1. To prevent electric shock, do not use a wet hand to pull the power cord, and please prevent the water from entering the control circuit.
2. Keep the device away from explosives and flammable materials. Do not use this dental electric motor for patients who are anesthetized with nitrous oxide.

Warnings:

1. This dental electric motor may malfunction when used in an environment where electromagnetic interference occurs. This dental electric motor cannot be installed near the device that releases the magnetic wave.
2. This product requires special precautions for EMC and needs to be installed and put into use according to the EMC environment.
3. Device with electromagnetic transmitting will affect the normal operation of this product. Please do not run both devices at the same time.
4. Do not use it in operating rooms that contain a mixture of potentially flammable gases.
5. To avoid possible injury or damage to the dental electric motor, make sure that the motor handpiece (hereinafter referred to as the “motor”) is completely stopped when changing the contra-angle. (And the contra-angle tool should be replaced by the foot pedal controller.)
6. A severe impact, such as a drop from high position, can result in damage to the dental electric motor.
7. During the working process of peristaltic pump, the water pipe should not be bent or knotted excessively, otherwise the water pipe may break.
8. Do not attempt to disassemble the displayer or motor.
9. After use, please immediately clean the motor.
10. Do not lubricate the motor. The lubricant may cause overheating and damage the motor.
11. Do not use a solution with dissolving ability to clean the displayer.
12. Cautions: Do not use saline solution. Pure water or distilled water is

recimmended.

1.2 Intended use

Provide driving force of dental handpieces for dental surgery.

1.3 Models

ES5, ES5+, ES5 Pro, ES5 Pro+

1.4 Performance structure and composition

The device is composed of main unit, motor (tail cord included) and foot pedal.

Contraindications

(1) Hemophilia patients are forbidden to use this device.

(2) Patients or doctors with heart pacemakers are forbidden to use this device.

(3) Heart disease patients and children should be cautious to use this device.

(4) Patients with oral and maxillofacial infections, unhealed oral mucosal diseases, periapical periodontitis, gum disease, periodontal disease, oral tumors, etc. should be cautious to use this device.

(5) Patients with allergic constitution and history of drug allergy are forbidden to use this device.

(6) Patients with mental disturbance should be cautious to use this device.

(7) Patients with severe systemic or systemic diseases such as heart, liver, kidney, hematopoietic system, digestive system and endocrine system should be cautious to use this device.

(8) Pregnant women or lactating women, women of childbearing age who have recently had a birth plan should be cautious to use this device.

1.5 Safety requirements

Guilin Woodpecker Medical Instrument Co., Ltd. bears no responsibility for any direct or indirect damage or loss if:

-the device is used for any purpose other than the mentioned scope of application.

-the operator does not use the device according to the steps and requirements written in the manual.

-the wiring system of the room where the device is used does not meet the appropriate standards and suitable requirements.

-the device is not assembled, operated, or repaired with the authorization of Woodpecker.

-the environmental conditions in which the device is located or stored do not meet the requirements mentioned in the section on technical requirements in the instruction manual.

2 Accessories list

See the packing list for the accessories list.

3 Basic technical parameters

3.1 Specifications

Main unit model	ES5	ES5+	ES5 Pro	ES5 Pro+
Power supply input	AC 100-240V 50Hz/60Hz			
Main unit size	155mm×167mm×227mm			
(r/min) No-load speed (r/min)	1000~41000	1000~41500	1000~42000	1000~42500
Motor model	E-MT			
Spray water source	Maximum water is no less than 50ml/min			
Spray air source	Air flow is no less than 1.5L/min		-	
Cooling air flow	Maximum air flow is no more than 40L/min		-	
Contra-angle gear ratio	(r/min) Rotation speed output (r/min)			
	ES5	ES5+	ES5 Pro	ES5 Pro+
1:1	1000~41000	1000~41500	1000~42000	1000~42500
1:3	3000~123000	3000~124500	3000~126000	3000~127500
1:4.2	4200~172200	4200~174300	4200~176400	4200~178500
1:5	5000~205000	5000~207500	5000~210000	5000~212500
16:1	100~2550	100~2550	100~2550	100~2550

3.2 Operation environment

3.2.1Ambient temperature: +5℃ ~ +40℃
3.2.2 Relative humidity: 30% ~ 75%
3.2.3 Atmospheric pressure: 70kPa ~ 106kPa

3.3 Device safety classification

3.3.1 Type of protection against electric shock: Class I equipment
3.3.2 Degree of protection against electric shock: B type applied part
3.3.3 Degree of protection against harmful ingress of water:
Main unit: Ordinary equipment (IPX0), not waterproof; Foot pedal: ≥IPX1.
3.3.4 Classified by operation mode: Intermittent operating device
(Work continuously for 3min, stop for 2min).
3.3.5 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.

4 Installation

4.1 Safety requirements during installation

⚠DANGER: The device should be installed on the premise that the installation must comply with appropriate standards and associated electric safety requirements.

⚠DANGER: Never install the unit in an explosive atmosphere and do not operate it in areas with flammable gases (anesthetic mixtures, oxygen, etc.).

⚠DANGER: The installation site should avoid shocks and splashes of water or other liquids.

⚠DANGER: Do not install the unit near or above the heat source. It must be installed in a place where the surrounding air is sufficiently circulated. There should be enough space around it, especially for the exhaust fan and the back position.

⚠WARNING: Do not place the parts directly under sunlight or ultraviolet light.

⚠WARNING: This device is movable, but please handle it with care.

⚠WARNING: Make sure the connection parts are dry before connecting the wires to the unit. If necessary, blow to dry it with an air syringe.

⚠WARNING: To prevent electric shock, the device needs to be connected to the power supply network that has protective grounding.

⚠WARNING: Modification of the equipment is not allowed.

4.2 Installation instructions

4.2.1 Accessories installation

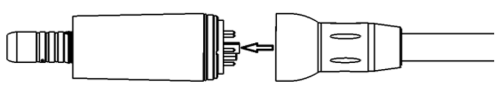


Fig 1 Connection of motor handpiece and its tail cord

As shown in Fig 1, after align the motor to the tail cord, screw the motor into tail cord connector and make sure they're tightly connected. There should not be a large gap between the motor and the tail cord connector.

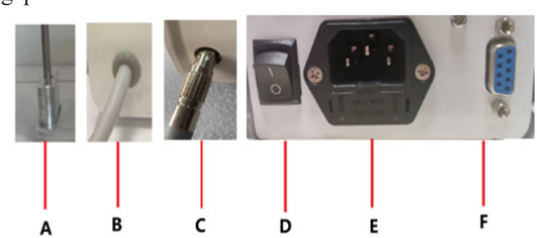


Fig 2 Accessories installation

4.2.2 Foot pedal installation

Connect the plug of foot pedal to the pedal socket and tighten the two retaining screws (Fig 2- refer to F)

4.2.3 Power cord installation

Insert the output end of the power cord to the power socket of the device (Fig 2- refer to E)

4.2.4 Infusion bottle holder installation

Insert the infusion bottle holder into the fixed hole at the right rear of the casing (Fig 2- refer to A).

4.2.5 Infusion bottle installation

Hang the infusion bottle (The infusion bottle containing normal saline must be purchased by the doctor himself/herself) on the infusion bottle holder.

4.2.6 Motor handpiece installation

For ES5 and ES5+, insert the motor handpiece plug into the fixed hole in the front left of the casing (Fig 2- refer to C).

For ES5Pro and ES5Pro+, The motor handpiece tail cord and the main unit are integrated, and the connection has been completed before delivery (Fig 2- refer to B).

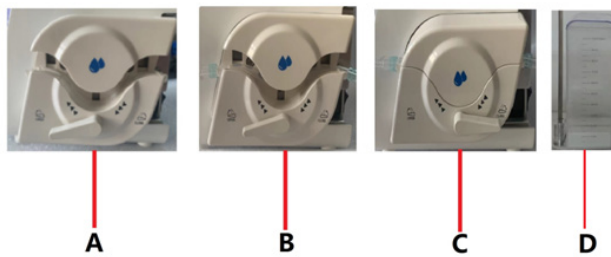


Fig 3 Disposable water pipe installation

4.2.7 Peristaltic pump line installation

A.Rotate the spinner of the peristaltic pump counterclockwise (as indicated by the arrow above “CLOSE”) to the “OPEN” indicated position and open the pump head (Fig 3- refer to A)

B.Place the pump pipe in the impeller of the peristaltic pump (Fig 3- refer to B)

C.Rotate the spinner of the peristaltic pump clockwise (as indicated by the arrow above “OPEN”) to the “CLOSE” indicated position and close the pump head (Fig 3- refer to C)

4.2.8 Water tank installation

Install the water tank on the tank support (Figure 3- refer to D)

4.2.9 The overall look after installation

The front view of ES5 and ES5+ after installation is shown in Fig 4-1.

The front view of ES5 Pro and ES5 Pro+ after installation is shown in Fig 4-2.



Fig 4-1 Front view of ES5 and ES5+



Fig 4-2 Front view of ES5 Pro and ES5 Pro+

5 Main unit interface

5.1 Main interface

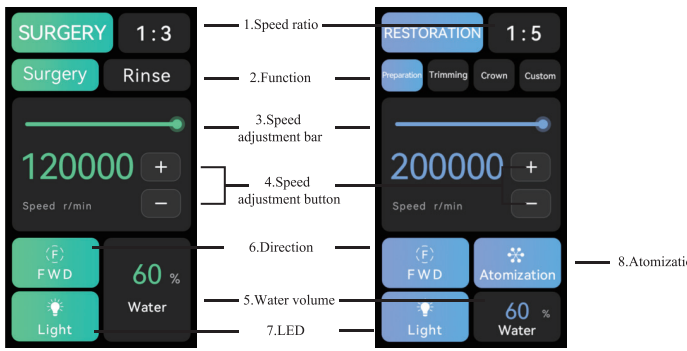


Fig 5 Main interface of the Surgery and Restoration Mode

Function description of each touch switch:

(1) Speed ratio switch

Enter the speed ratio selection interface to set the gear ratio connected to the dental contra-angle.

(2) Function button

Quickly switch to different functions.

(3) Speed adjustment bar

Used to adjust the motor speed. Quickly adjust the motor speed by sliding the speed adjustment bar.

(4) Adjustment button

Used to set the motor speed. Press the "+"/ "-" button to increase/decrease the speed; continuous pressing will speed up the changes.

(5) Water volume button

Click to select the amount of water. A total of 6 gears: 0% (no water), 20%, 40%, 60%, 80%, 100%. Press the button repeatedly to select circularly.

(6) Direction button

Used to select the rotation direction of the motor, and the direction will be changed each time the button is pressed.

(7) LED button

Motor LED switch, can be touched repeatedly to control the LED on/off.

(8) Atomization button

Motor atomization switch, can be touched repeatedly to control atomization on/off.

5.2 Contra-angle speed ratio selection interface

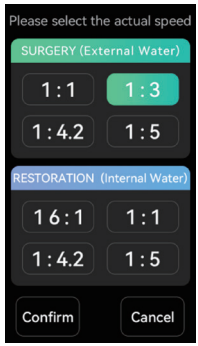


Fig 6 Speed ratio selection interface

Click the speed ratio icon on the main interface to enter the speed ratio setting interface automatically. Click the speed ratio in Surgery Mode (1:1, 1:3, 1:4.2, 1:5) or the speed ratio in Restoration Mode (16:1, 1:1, 1:4.2, 1:5). When selecting "Confirm", the selected speed ratio will take effect; when selecting "cancel", the selected speed ratio will be invalid.

5.3 Restore factory settings interface

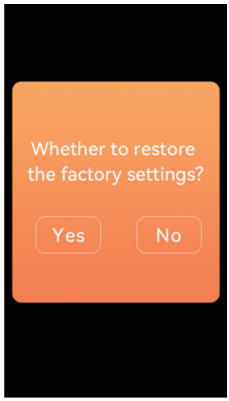
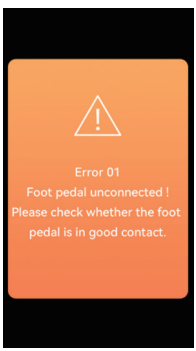


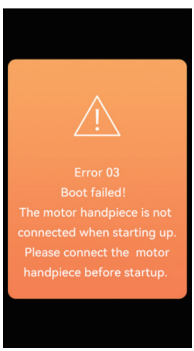
Fig 7 Restore the factory settings

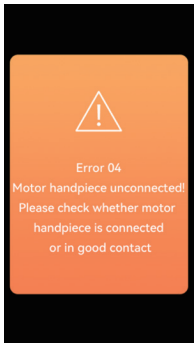
Step on the foot pedal when starting up, and the restore the factory settings interface will pop up for confirmation. If selecting "Yes", the saved parameters will be cleared and the original factory settings will be restored. If selecting "No", the factory settings will not be restored, and the machine will be started normally.

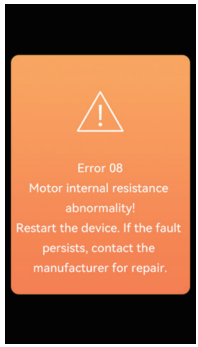
5.4 Error prompt interface











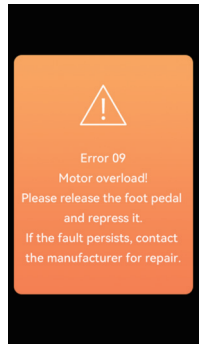


Fig 8 Error warning interface

As shown in Figure 8, the error 0x---represents the error number. When there is a problem with the operation, the displayer will provide the error code of the problem diagnosis: Specifically, switch to the error prompt interface, and provide the explanation of the problem and corresponding solution:

Error number	**Error description**	**Solutions**
Error 01	Foot pedal unconnected	Ensure the foot pedal is connected. If the alarm still persists, please contact our local distributor or Woodpecker.
Error 02	Voltage abnormality	The power supply voltage is unstable, please ensure the stability of network voltage. If the alarm still persists , please contact our local distributor or Woodpecker.
Error 03	Boot failed	The motor handpiece is not connected when starting up. Make sure the motor handpiece and the main unit are connected normally, then start up the machine again. If the alarm still persists , please contact our local distributor or Woodpecker.
Error 04	Motor Handpiece unconnected	Check if the handpiece is in good contact. If the alarm still persists, please contact our local distributor or Woodpecker.
Error 08	Motor internal resistance abnormality	Please contact our local distributor or Woodpecker
Error 09	Motor overload	Please release the pedal and step on it again.

6 Function and operation

6.1 Install the product correctly according to the product installation steps. The operator shall face the direction of the device screen.

6.2 After the main unit is powered on, the displayer will light up and enter the main control interface (as shown in Fig 5).

6.3 Electric motor operation is controlled by multi-function foot pedal.

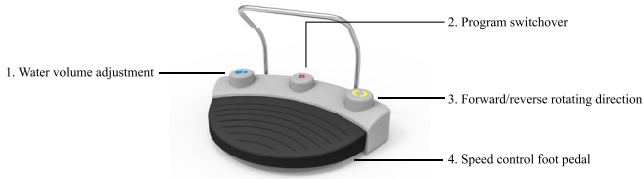


Fig 9 Multi-function foot pedal

(1) Water volume adjustment button

There are 6 levels to select for the cooling flow; one level will be increased every time the button is pressed. If Level 6 is the greatest level, then after pressing the button once, the level will cycle back to Level 1.

(2) Program switching button

It is used in selecting the desired program. Press the button once, and the program will be incremented. If it is in the Surgery Mode interface, it will switch between the Surgery Mode and the Rinse Mode cyclically. If it is in the Restoration Mode interface, it will switch among the Tooth Preparation Mode, the Refined Trimming Mode, the Crown Removal Mode and the Custom Mode cyclically.

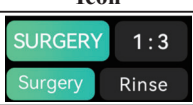
(3) Forward/Reverse rotation button

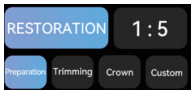
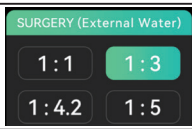
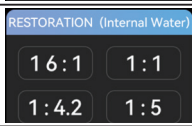
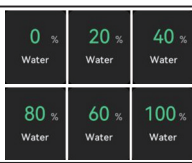
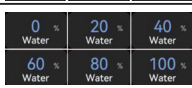
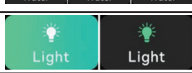
Used to change the motor rotation direction. The change happens each time the buttons is pressed.

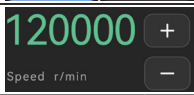
(4) Speed control foot pedal

Used to start and stop the motor and to control its speed during operation. The operation speed of the motor is directly controlled by foot pedal, and the displayed data becomes the maximum set value after the foot pedal is released.

6.4 Icon function description:

Icon	Name	Function
	Surgery mode	Select the mode under surgery mode (Surgery/Rinse)

Icon	Name	Function
	Restoration mode	Select the mode under restoration mode (Tooth Preparation/Refined Trimming/Crown Splitting/ Custom)
	Surgery mode: speed ratio selection touch button	Surgery mode: select the speed ratio for dental contra-angle (1:1/1:3/1:4.2/1:5)
	Restoration mode: speed ratio selection touch button	Restoration mode: select the speed ratio for dental contra-angle (16:1/1:1/1:4.2/1:5)
	Surgery mode: speed adjustment touch button	Surgery mode: acceleration/ deceleration
	Restoration mode: speed adjustment touch button	Restoration mode: acceleration/deceleration
	Surgery mode: forward/ reverse rotation adjustment touch button	Surgery mode: control the forward/reverse rotation of motor
	Restoration mode: forward/reverse rotation adjustment touch button	Restoration mode: control the forward/reverse rotation of motor
	Surgery mode: water volume adjustment touch button	Surgery mode: adjust water volume (0%, 20%, 40%, 60%, 80%, 100%)
	Restoration mode: water volume adjustment touch button	Restoration mode: adjust water volume (0%, 20%, 40%, 60%, 80%, 100%)
	Surgery mode: light touch button	Surgery mode: turn on/off the motor light
	Restoration mode: light touch button	Restoration mode: turn on/off the motor light

Icon	Name	Function
	Restoration mode: atomization touch button	Restoration mode: turn on/off atomization effect
	Surgery mode: speed display	Surgery mode: set operating speed display
	Restoration mode: speed display	Restoration mode: set operating speed display

6.5 Parameter adjustment

Working mode, speed ratio, program mode, maximum speed, forward and reverse rotation, water volume, light and atomization can all be adjusted within the set range.

6.5.1 Adjust working mode

(1) Surgery mode: On the main control interface, touch the speed ratio button to automatically enter the speed ratio selection interface. Select the speed ratio corresponding to the surgery mode at this page, and then press the "Confirm" button to automatically enter the "Surgery Mode".

(2) Restoration mode: On the main control interface, touch the speed ratio button to automatically enter the speed ratio selection interface. Select the speed ratio corresponding to the restoration mode at this page, and then press the "Confirm" button to automatically enter the "Restoration Mode".

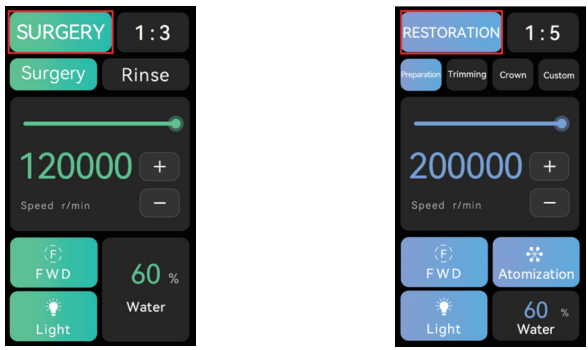


Fig 10 Adjust the working mode

6.5.2 Adjust the speed ratio

(1) Surgery mode: On the main control interface, touch the speed ratio button to automatically enter the speed ratio selection interface. Then select the speed ratio in surgery mode and press the "Confirm" button to adjust the speed ratio in this mode.

(2) Restoration mode: On the main control interface, touch the speed ratio button to automatically enter the speed ratio selection interface. Then select the speed ratio in restoration mode and press the "Confirm" button to adjust the speed ratio in this mode.

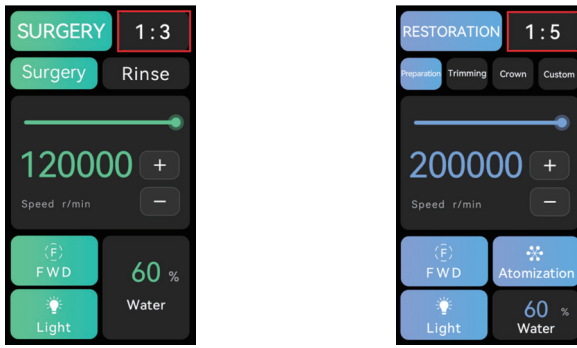


Fig 11 Adjust speed ratio

6.5.3 Adjust the program mode

(1) Surgery mode: On the main control interface, touch “Surgery” and “Rinse” buttons to select the surgery and the rinse program modes.

(2) Restoration mode: On the main control interface, touch “Tooth Preparation”, “Refined Trimming”, “Crown Removal” and “Custom” button to select the tooth preparation, refined trimming, crown removal and custom program modes.

(3) Step on the "P" button. If in the Surgery Mode interface, it will switch between the Surgery Mode and the Rinse Mode cyclically. If in the Restoration Mode interface, it will switch among the Tooth Preparation Mode, the Refined Trimming Mode, the Crown Removal Mode and the Custom Mode cyclically.



Fig 12 Adjust the program mode

6.5.4 Adjust the motor speed

In the main control interface, adjust the speed by adjusting the “+”/ “-” buttons or sliding bar.

(1) Surgery mode: In the main control interface, adjust the speed by adjusting the “+”/ “-” buttons or sliding bar.

(2) Restoration mode: In the main control interface, adjust the speed by adjusting the “+”/ “-” buttons or sliding bar.



Fig 13 Adjust the motor speed

6.5.5 Adjust the motor rotation direction

(1) Surgery mode: In the main control interface, adjust the motor rotation direction by adjusting the forward/reverse rotation buttons.

(2) Restoration mode: In the main control interface, adjust the motor rotation direction by adjusting the forward/reverse rotation buttons.

(3) Step on the “FWD” / “REV” buttons on the foot pedal, the motor rotation direction can be changed no matter in the surgery mode interface.



Fig 14 Adjust the motor rotation direction

6.5.6 Water volume adjustment

(1) Surgery mode: In the main control interface, adjust the water volume by adjusting the water volume button, there are 6 levels in total, and each touch will adjust a level.
(2) Restoration mode: In the main control interface, adjust the water volume by adjusting the water volume button. There are 6 levels in total, and each touch will adjust a level.
(3) Step on the “Water” button on the foot pedal, the water volume can be adjusted no matter in the surgery mode interface or in the restoration mode interface.

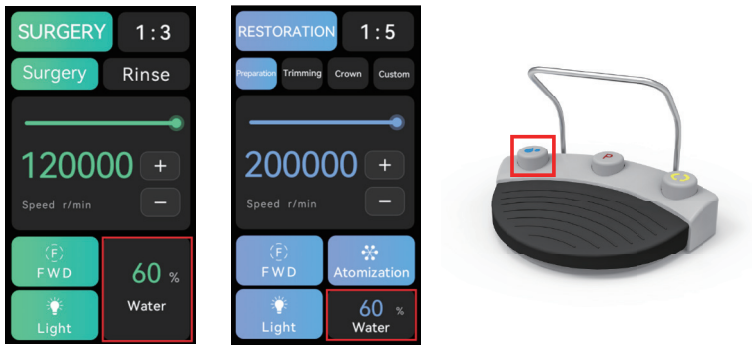


Fig 15 Water volume adjustment

6.5.7 Motor LED adjustment
(1) Surgery mode: In the main control interface, adjust the LED on/off through the “Light” button. Switch the LED on /off state with each touch.
(2) Restoration mode: In the main control interface, adjust the LED on/off through the “Light” button. Switch the LED on /off state with each touch.

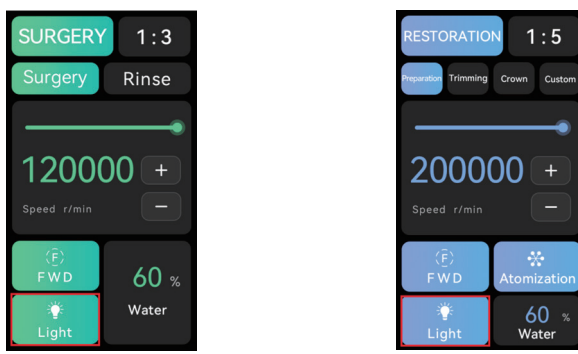


Fig 16 Motor LED adjustment

6.5.8 Atomization adjustment

(1) Restoration mode: In the main control interface, adjust the on/off of the atomization through the atomization button. Switch the atomization on/off state with each touch.

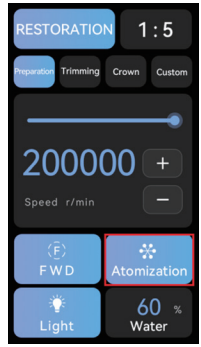


Fig 17 Atomization adjustment

6.6 Safe exit

After the operation, loosen the foot pedal. Remove the contra-angle handpiece out of the patient's mouth, and ensure that the motor stops rotating before removing the contra-angle handpiece .

7 Safety precautions

Cautions

7.1 For repairs and purchase of spare parts, please contact our authorized supplier.

7.2 The accuracy of the speed monitoring depends on the high precision performance of the handpiece installed on the motor. If the handpiece of other manufacturers is used, the actual speed value may not be displayed correctly. To ensure the correct display of the actual speed, please use the contra-angle in accordance with YY 1045.2-2010.

7.3 Read this operating manual before use and fully understand the functions of each part.

7.4 Check the operating status of the dental electric motor before use to confirm that there is no abnormality.

7.5 If the dental electric motor is permanently malfunctioning (excessive vibration, noise and heat generation, etc.), please immediately close it and return it to the authorized dealer.

7.6 Clean the control panel with a damp cloth and turn off the power before cleaning.

7.7 The use of the product must comply with the requirements of the relevant operating specifications and relevant laws and regulations of the medical

department, and is limited to trained doctors or technicians.

7.8 End users are not allowed to disassemble and assemble the dental electric motor casing, so as not to affect the performance of the machine. Please contact us if you have special requirements.

7.9 Woodpecker is a professional manufacturer of medical devices, and we are responsible for the safety of this machine only if the maintenance, repair and alterations are carried out by Woodpecker or by our authorized distributors, and if the replacement parts are Woodpecker brand and the operation is performed as per instruction manual.

7.10 The manufacturer may, upon request, provide circuit diagrams, list of components, diagrams, calibration instructions, or other information to assist the maintenance personnel in repairing equipment parts specified by the manufacturer for repair by the maintenance personnel.

8 Cleaning, disinfection and sterilization

8.1 Cleaning

Remove the motor off the tail cord, clean the motor surface with a water-absorbent cloth to remove any liquid residue from the motor surface and wipe it back and forth 5 times.

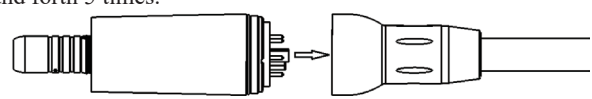


Fig 18 Motor removal diagram

8.2 Disinfection

(1) Wipe the motor surface for disinfection with clean soft cloth dipped with 75% alcohol.

(2) Do not use disinfectants containing acetone, chlorides, etc.;

(3) It is strictly forbidden to immerse the motor in the disinfectant;

(4) Ultrasound cleaning is not allowed.

8.3 Drying

Drying should be conducted after cleaning and disinfection. It is recommended to use compressed air to blow dry.

8.4 Sterilization

Before sterilization, first install a disinfection plug and a disinfection aluminum sleeve on both sides of the motor respectively. Place the motor in a high pressure steam sterilization bag, and seal it. And then conduct sterilization under the temperature of 134℃ (273℉) and pressure of 2.0 bar ~ 2.3 bar (0.20MPa ~ 0.23MPa) for not less than 4 minutes. Drying is needed after sterilization. The sterilization of the dental contra-angle is detailed in its instruction manual.

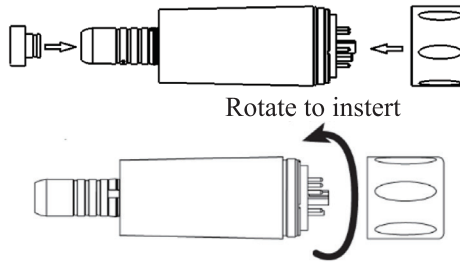


Fig 19 Schematic diagram of installing the motor sterilization sleeve



Fig 20 Installation complete

Warnings:

1.Install disinfection plug and disinfection aluminum sleeve at the motor interface before sterilization. The installation method is shown above.

2.Before motor sterilization, the tail cord should be removed.

3.Do not lubricate the inside of the motor with oil.

4.The motor can be sterilized repeatedly for at least 250 cycles. (It is recommended that you perform an overhaul after 300 times of sterilization)

Except the motor and contra-angle, the other parts such as main unit, power adapter and tail cord are not allowed to be autoclaved.

9 Storage and transportation

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

9.2 Do not store the device together with articles that are poisonous, combustible, caustic, or explosive.

9.3 The products should be stored in an environment with relative humidity of 10%~93%, atmospheric pressure of 70kPa~106kPa and temperature of -20℃~+55℃.

9.4 Excessive impact and shake should be prevented during transport. Lay it carefully and lightly.

9.5 Do not put it together with dangerous goods during transport.

9.6 Avoid being exposed to sun, rain, and snow during transport.

10 Maintenance

10.1 When the device is not in use, turn off the power and unplug the power plug; when it is not in use for a long time, it should be powered on and

watered once a month for five minutes each time.
10.2 Regularly check the integrity of the cable. If it is damaged, please replace it with the original accessories.
10.3 Replacement of fuses
Ensure to disconnect the power supply (see Fig 21- refer to B) to turn off the equipment and disconnect the power cord from the mains when performing the following operations.
(1) Insert a flat-blade screwdriver into the groove below the power supply hole and pry out (Fig 21—refer to A).
(2) Pull out the fuse compartment (Fig 21—refer to B), and select the appropriate fuse to replace according to the label on the bottom of the power outlet.
(3) Push the fuse compartment to the initial position (Fig 21- refer to B)

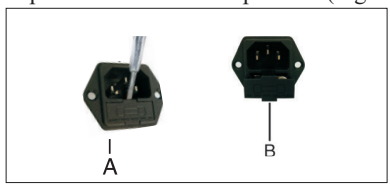


Fig 21 Replacement of fuses

11 After-sales Service

Since the date of sales, for the device that cannot work normally for quality problem, with Warranty Card, Woodpecker is responsible for the repair. Please refer to the Warranty Card for details of warranty.
(Since this product is a precision device, if there is a failure that requires repair, it is not recommended to disassemble it by yourself. It should be returned to Woodpecker or handled by professionals.)

12 Environment protection

Parts	Toxic or harmful substances or elements					
	Pb	Hg	Cd	Cr6+	PBB	PBDE
Main unit	○	○	○	○	○	○
Motor handpiece	○	○	○	○	○	○
Dental contra-angle	○	○	○	○	○	○
Mechanical elements, including bolts, nuts, washers, etc.	○	○	○	○	○	○

○: Indicates that the content of the toxic substance in all homogeneous materials of the part is below the limit requirement stipulated in SJ/T-11363-2006 Limit Requirements for Toxic and Hazardous Substances in Electronic Information Products.
×: Indicates that the content of the toxic substance in at least one of the homogeneous materials of the part exceeds the limit requirement specified in SJ/T-11363-2006.
(This product meets EU RoHS environmental protection requirements; there is currently no mature technology in the world to replace or reduce the content of lead in electronic ceramics, optical glass, steel and copper alloy.)
According to the Administrative Measures on the Restriction of the Use of Hazardous Substances in Electric and Electronic Products and the Regulations on the Management of the Recycling of Waste Electric and Electronic Products and related standards, please observe the safety and precautions of the products. After use, please recycle or dispose this product according to the methods in local laws and regulations.

13 Symbol instruction

	Products comply with WEEE directive		Date of manufacture
	Type B applied part		Autoclavable up to the specified temperature
	Used indoor only		CE marked product
IPX6	Anti strong spray	IPX0	Ordinary equipment
	Foot switch interface		Fragile items, handle with care
	Manufacturer		Follow instructions
SN	Serial number	~	Alternating current
	Fuse		Protective earthing
	There is a waterway in the component.		Water flow direction
	On (Power)		Off (Power)
	The position of the knob when the peristaltic pump is closed and the direction in which the knob can be rotated in the current state.		

	The position of the knob when the peristaltic pump is open and the direction in which the knob can be rotated in the current state.
	Atmospheric pressure for storage: 70kPa~106kPa
	Temperature limit for storage: -20℃~+55℃
	Humidity limit for storage: 10%~93%
EC REP	Authorised Representative in the EUROPEAN COMMUNITY

14 EMC-Declaration of comformity

Instructions for use

The ME EQUIPMENT or ME SYSTEM is suitable for Professional healthcare facility environment and so on.Dental Electric Motor do not contains magnetically sensitive electronic components and circuitry.

Warning: Don't near active HF surgical equipment and the RF shielded room of an ME system for magnetic resonance imaging, where the intensity of EM disturbances is high.

Warning: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

Warning: Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation."

Warning: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Dental Electric Motor (model name: ES5+, ES5, ES5 Pro, ES5 Pro+), including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

NOTE The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 Class A). If it is used in a residential environment (for which CISPR 11 Class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

If any: a list of all cables and maximum lengths of cables (if applicable), transducers and other ACCESSORIES that are replaceable by the

RESPONSIBLE ORGANIZATION and that are likely to affect compliance of the ME EQUIPMENT or ME SYSTEM with the requirements of Clause 7 (EMISSIONS) and Clause 8 (IMMUNITY). ACCESSORIES may be specified either generically (e.g. shielded cable, load impedance) or specifically (e.g. by MANUFACTURER and EQUIPMENT OR TYPE REFERENCE).

If any: the performance of the ME EQUIPMENT or ME SYSTEM that was determined to be ESSENTIAL PERFORMANCE and a description of what the OPERATOR can expect if the ESSENTIAL PERFORMANCE is lost or degraded due to EM DISTURBANCES (the defined term "ESSENTIAL PERFORMANCE" need not be used).

14.1 Cable installation requirements

No.	Cable name	Cable length	Cable type
1	Power cable	1.50m	Unshielded parallel cable
2	Foot pedal cable	2.80m	Unshielded parallel cable
3	Handpiece tail cord	1.8m	Unshielded parallel cable

14.2 Guidance and manufacturer's declaration - electromagnetic emissions

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

14.3 Guidance and manufacturer's declaration -electromagnetic immunity

Guidance and manufacturer's declaration - electromagnetic Immunity		
Immunity Test	**IEC 60601-1-2 Test level**	**Compliance level**
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
Electrical fast transient/ burst IEC 61000-4-4	Power supply lines:±2 kV input/output lines: ±1 kV 100 kHz repetition frequency	Power supply lines:±2 kV input/output lines:±1 kV 100 kHz repetition frequency

Guidance and manufacturer's declaration - electromagnetic Immunity		
Immunity Test	**IEC 60601-1-2 Test level**	**Compliance level**
Surge IEC 61000-4-5	line(s) to line(s): ±0.5, ±1 kV line(s) to earth: ±0.5, ±1, ±2 kV	line(s) to line(s): ±0.5, ±1 kV line(s) to earth: ±0.5, ±1, ±2 kV
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% 0.5 cycle At 0º, 45 º, 90 º, 135 º, 180 º, 225 º, 270 º and 315 º 0% 1 cycle And 70% 25/30 cycles Single phase: at 0 0% 300 cycle	0% 0.5 cycle At 0º, 45 º, 90 º, 135 º, 180 º, 225 º, 270 º and 315 º 0% 1 cycle And 70% 25/30 cycles Single phase: at 0 0% 300 cycle
Power frequency magnetic field IEC 61000-4-8	30 A/m 50Hz/60Hz	30 A/m 50Hz/60Hz
Conduced RF IEC61000-4-6	150KHz to 80MHz: 3Vrms 6Vrms (in ISM bands) 80% Am at 1kHz	150KHz to 80MHz: 3Vrms 6Vrms (in ISM bands) 80% Am at 1kHz
Radiated RF IEC61000-4-3	3 V/m 80 MHz – 2,7 GHz 80 % AM at 1 kHz	3 V/m 80 MHz – 2,7 GHz 80 % AM at 1 kHz
Proximity magnetic fields IEC 61000-4-39	30 kHz: 8A/m 134.2 kHz: 65A/m 13.56 MHz: 7.5A/m	Not application
NOTE U_T is the a.c. mians voltage prior to application of the test level.		

14.4 Guidance and manufacturer's declaration -electromagnetic immunity

Guidance and manufacturer's declaration - electromagnetic Immunity								
	Test Frequency (MHz)	**Band (MHz)**	**Service**	**Modulation**	**Maximum Power (W)**	**Distance (m)**	**IEC 60601-1-2 Test level (V/m)**	**Compliance level (V/m)**
Radiated RF IEC61000-4-3 (Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment)	385	380–390	TETRA 400	Pulse modulation 18 Hz	1,8	0,3	27	27
	450	430–470	GMRS 460, FRS 460	FM ± 5 kHz deviation 1 kHz sine	2	0,3	28	28
	710	704–787	LTE Band 13,17	Pulse modulation 217 Hz	0,2	0,3	9	9
	745							
	780							
	810	800–960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation 18 Hz	2	0,3	28	28
	870							
	930							
	1720	1700–1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation 217 Hz	2	0,3	28	28
	1845							
	1970							
	2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217 Hz	2	0,3	28	28
	5240	5100-5800	WLAN 802.11 a/n	Pulse modulation 217 Hz	0,2	0,3	9	9
	5500							
	5785							

14.5 Recommended separation distances between portable and mobile RF communications equipment and the model ES5, ES5+, ES5 Pro, ES5 Pro+ dental electric motor

Guidance and manufacturer's declaration - electromagnetic Immunity		
Test frequency	**Modulation**	**IMMUNITY TEST LEVEL (A/m)**
30 kHz	CW	8
134,2 kHz	Pulse modulation [a] 2,1 kHz	65 [b]
13,56 MHz	Pulse modulation [a] 50 kHz	7,5 [b]
a) The carrier shall be modulated using a 50% duty cycle square wave signal. b) r.m.s., before modulation is applied.		

15 Statement

Please refer to the packaging label for the date of manufacture. Service life: 10 year.

Scan and Login website
for more information

Guilin Woodpecker Medical Instrument Co., Ltd.
Information Industrial Park, Guilin National High-Tech
Zone, Guilin, Guangxi, 541004 P. R. China
Tel:
Sales Dept.: 0773-5873196/ 2350599
After-sales Service Dept.: 0773-5827898/13978361362
Website: http://www.glwoodpecker.com
E-mail: woodpecker4@glwoodpecker.com
EC REP MedNet EC-Rep GmbH
Borkstrasse 10 · 48163 Muenster · Germany

Cut along the dashed line

Dental Electric Motor Warranty Card

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

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

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

Distributor:

Seal

Dental Electric Motor Warranty Card

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

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

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

Distributor:

Seal

Warranty Instruction

Ⅰ Period validity:

Within one year from the date of sale, the main unit, handpiece and contra-angle can be repaired for free by providing warranty card.

Ⅱ Range of warranty:

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

Ⅲ The following are beyond our warranty:

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

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