ALAN Dental Equipment

Dental Electric Motor Instruction

Please read all instructions before using this device.

Thank you for purchasing MT2 Dental Electric Motor manufactured by Guilin Woodpecker Medical Instrument Co, Ltd. To make sure that you are using the device correctly, we recommend that you read the instructions on Installation, Operation and Maintenance carefully.

Guilin Woodpecker Medical Instrument Co., Ltd.

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Forward

Guilin Woodpecker Medical Instrument Co., Ltd is a manufacturer specializing in the development and manufacture of dental products. Woodpecker owns a sound quality control system and four brands, Woodpecker, DTE, DBA and RTA. The main products include Ultrasonic Scaler, Curing light, Apex locator, Ultrasurgery, Endo Motor, and Dental Electric Motor, etc.

1 Introduction

The MT2 dental electric motor consists of main unit, motor, motor tail line, power adapter and power cord. It is intended for use in general dental applications such as: cutting a tooth for cavity preparation, crown preparation, crown finishing, inlay, filing, polishing, prophylaxis and endodontic treatment.

1.1 Precautions before operation

⚠ Dangers:

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

⚠ Warnings:

1. Federal law restricts this device to sale by or on the order of a dentist.
2. This dental electric motor may malfunction when it was used in an environment where electromagnetic interference occurs. This dental electric motor cannot be installed near the device that releases the magnetic wave. When using an ultrasonic vibrating device or an electrode knife in the vicinity, please switch off the dental electric motor.
3. Special precautions need to be taken for EMC, and MT2 needs to be installed and put into use according to the EMC environment.
4. Device with electromagnetic emission will affect the normal operation of MT2. Please do not run both devices at the same time.
5. Do not use the device in operating rooms that contain a mixture of potentially flammable gases.

6. 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 replacing the contra-angle handpiece.
7. A severe impact, such as drop from high position, can result in damage to the dental electric motor.
8. Do not try to disassemble the control panel or motor.
9. Please clean the dental contra-angle handpiece (hereinafter referred to as the “handpiece”) immediately after use.
10. Do not lubricate the motor. The lubricant will cause the motor to overheat and damage the motor.
11. Do not use a solution with dissolving ability to clean the control panel.
12. Please switch off the device after each operation.

1.2 Intended use/Indications for Use

The MT2 dental electric motor consists of main unit, motor, motor tail, power adapter and power cord. It is intended for use in general dental applications such as: cutting a tooth for cavity preparation, crown preparation, crown finishing, inlay, filing, polishing, prophylaxis and endodontic treatment. The Dental Electric Motor can be used with a ISO E-type straight, right-angle or contra-angle handpiece attachment of equal, gear-reducing, or gear increasing speed.
The contra-angle handpieces (model:WJ-15, WJ-15L) are driven by a micro-motor to rotate at a specified speed, so as to drive the dental bur. It is applicable to drilling and grinding in dental surgery.

1.3 Model

MT2

1.4 Contraindications

1. Patients with hemophilia.
2. The patients or doctors with heart pacemaker.
3. Patients with allergic constitution and history of drug allergy.

1.5 Cautions

1. 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.

2. Patients with heart disease and children should be cautious to use this device.
3. Patients with mental disturbance should be cautious to use this device.
4. 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.
5. Pregnant women or lactating women, women of childbearing age who planning to have a baby recently should be cautious to use this device

1.6 Safety requirements

Guilin Woodpecker Medical Instrument Co., Ltd. will not be liable for any direct or indirect damages and losses under the following conditions:

• The device is used for any purpose other than the mentioned scope of application.
• The operator did not use the device in accordance with the procedures and requirements stipulated in the Instruction Manual.
• The wiring system of the room where the device is used does not meet the appropriate standards and requirements.
• Assembling, operating, and repairing the device without the authorization of the Woodpecker.
• The environmental conditions in which the device is located or stored do not meet the requirements mentioned in the section on technical requirements.

2 Basic technical parameters

2.1 Specification of main unit

Main unit	Software version	MT2-V1.0.0
	Size	165.5mm×129.7mm×77.6mm
	Weight	Main unit: 620.7g, Motor Handpiece: 70.6g
Power Adaptor	Model	UES90-300300SPA1
	Power input	100-240V~ 50/60Hz 1.5A
	Power output	DC 30V 3.0A

Motor	Model	E-MT
	Rotation speed	2,000-40,000rpm
	Torque range	1N•cm~5N•cm
	Voltage input	DC24V
	Size	Φ22×76.7mm
	Operation mode	Continuous
Motor LED light	Watts	3 W
	Color	White
Motor tail cord	Length	1800 mm
Water source	Water pressure	0.5 bar ~ 2 bar
	Water flow	0-100 mL/min
Air source	Air pressure	1.5 bar ~ 6 bar
	Spray air flow	1.5-5.0 L/min
	Motor cooling air flow	0-20 L/min
	Drive air flow	0-20 L/min
Coolant mechanism		Coolant air
Usage environment		Temperature:5-40°C, Humidity:30%-75% Atmospheric pressure: 70kPa ~ 106kPa
Storage environment		Temperature: -20 - +55 °C; Humidity: 10%- 93%, Atmospheric pressure: 70-106kPa

2.2 Specification of Contra-Angle Handpiece

Model	WJ-15	WJ-15L
Optical fiber	Without light	With light
Fiberoptics	NA	input:20000-65000 lx, output:14000-40000 lx
Coupling between motor and Contra-angle handpiece	Type 2(ISO 3964-2016)	Type 3(ISO 3964-2016)
Coupling dimension	Middle(ISO 3964-2016)	
Speed	10000~200000 rpm	

Chuck	Mechanical type chuck
Gear ratio	1:5 speed-rising
Shanks for rotary instruments	Type3,φ1.6mm bur (ISO 1797-1-2011)
Overall length of rotary instrument	19mm
Maximum overall length of rotary instrument	21mm
Maximum working diameter of the rotary instruments	2mm
Rod	A cylinder with rounded or chamfered ends
Minimum length of rod	12.5mm
Cooling water pressure	0.5-2 bar(1.5 bar is recommended)
Cooling air pressure	1.5-6 bar
Cooling air consumption under pressure of 2 bar	> 1.5 Nl/min
Bur extraction force	≥24N

2.3 Device safety classification

2.3.1 Type of protection against electric shock: Class II equipment
2.3.2 Degree of protection against electric shock: Type B applied part
2.3.3 Degree of main unit protection against harmful ingress of water: Ordinary equipment (IPX0). Not waterproof.
2.3.4 Classified by operation mode: Continuous operating device
2.3.5 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.

3 Product structure and composition

3.1 Safety requirements during installation

1. Installation of the device must comply with appropriate standards and associated electric safety requirements.
2. Never install the device in an explosive atmosphere and the device must not be operated in an area with flammable gases (anaesthetic mixtures, oxygen, etc.).
3. The installation site should prevent the device from being impacted, and avoid the device from being splashed by water or other liquids.
4. Do not install the device 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 the device.
5. Do not place the device in direct sunlight or ultraviolet light.
6. This device can be moved, but please handle it with care.
7. Make sure the connection parts are dry before connecting the wires to the unit. If necessary, blow it to dry with an air gun.

3.2 See the packing list for the machine configuration

The device consists of main unit, motor, motor tail, contra-angle handpiece, power adapter.

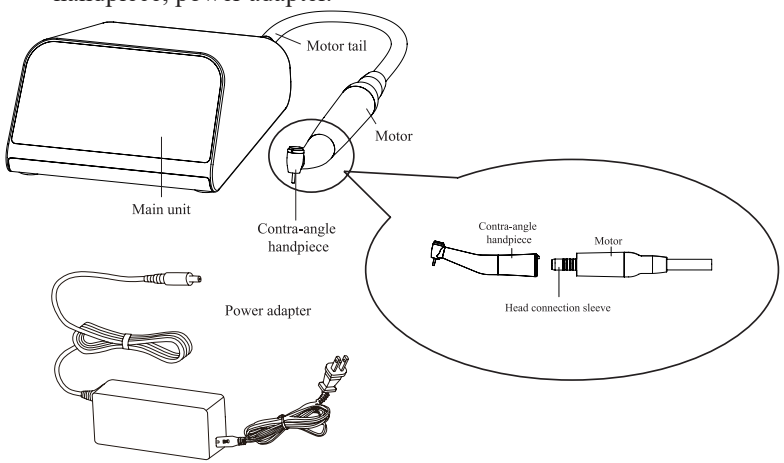


Figure 1

3.3 Front View of the Main Unit

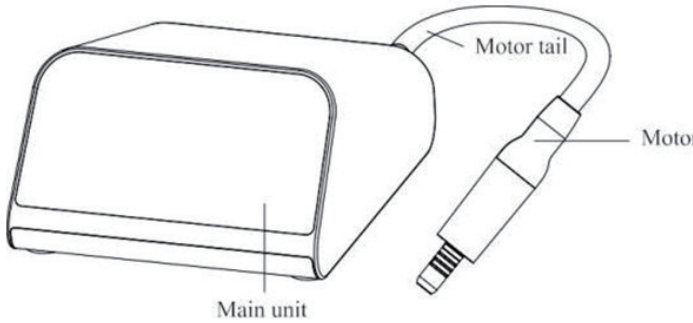


Figure 2

3.4 Rear view of the main unit

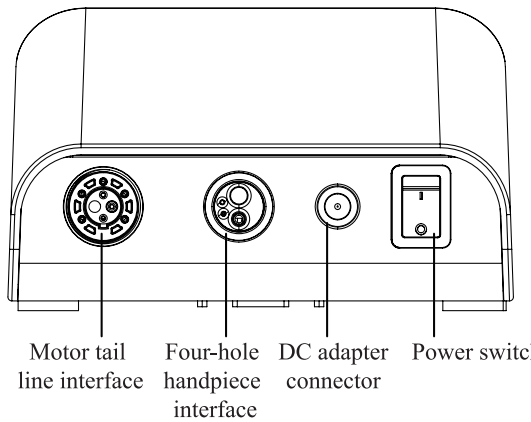


Figure 3

3.5 Schematic disgram of motor installation

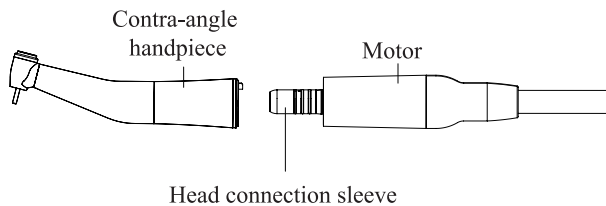


Figure 4

3.5.1 Connect/Disconnect motor and motor tail

A. Connect: First align the motor and motor tail interface, then insert the motor into the motor tail interface, and finally tighten the

nut

on the motor tail.

B. Disconnect: Unscrew the nut, and then remove the motor tail from the motor;

3.5.2 Connect/Disconnect motor and contra-angle handpiece

A. Connect: Insert the Head connection sleeve into the contra-angle handpiece, and then turn the contra-angle handpiece until you heard a “click” sound, to ensure accurate position;

B. Disconnect: When removing the contra-angle handpiece, pull out the contra-angle handpiece from the motor in parallel.

3.6 Installation steps

3.6.1 Open the package, check whether the components of the device are complete according to the packing list, and place the main unit on the stable platform of the dental unit.

3.6.2 Connect the four-hole handpiece tail of dental chair to the four-hole handpiece interface of the device and tighten completely.

3.6.3 Connect the power adapter to the DC adapter connector, then connect the power supply socket to the DC adapter with the power cord.

4 Main unit interface

4.1 Main interface

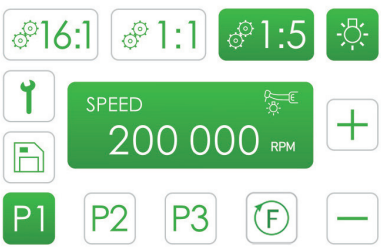


Figure 5

4.2 Setting interface

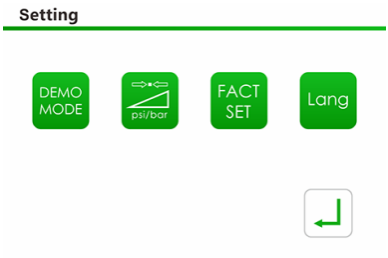


Figure 6

4.3 Manual mode interface

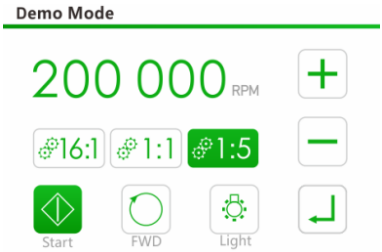


Figure 7

4.4 Interface of calibration mode

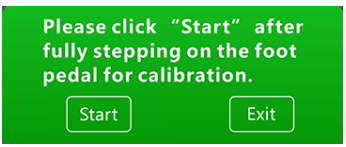


Figure 8

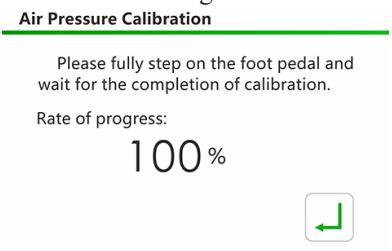


Figure 9

Enter the setting interface, click the “calibration” touch button to enter the air pressure calibration interface, click “Start”, and the interface will pop up as shown in Figure 9. Fully press down the foot pedal until 100% is displayed, then release the foot pedal to finish the calibration.

4.5 Restore the factory setting

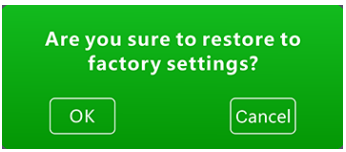


Figure 10

Enter the setting interface, and click the restore factory settings touch button to enter the restore factory settings interface for confirmation. In conforming interface, click “OK”, the interface shown in Figure 10 will pop up. Select "OK" to restore the original factory settings parameters or select "Cancel" to quit restoring factory settings.

4.6 Language selecting interface

Figure 11

Enter the setting interface, click the language selection touch button so that the interface shown in Figure 11 will pop up, and select the desired language. When you click “OK”, the corresponding language is selected. When you select “Cancel”, the original language would be maintained.

5 Function and operation

5.1 Install the product correctly according to the product installation steps, and the screen should be facing the operator.

5.2 Turn on the power switch on the main unit, the screen will display and enter the main control interface (Figure 1).

5.3 The motor is controlled by the foot pedal of the dental chair.

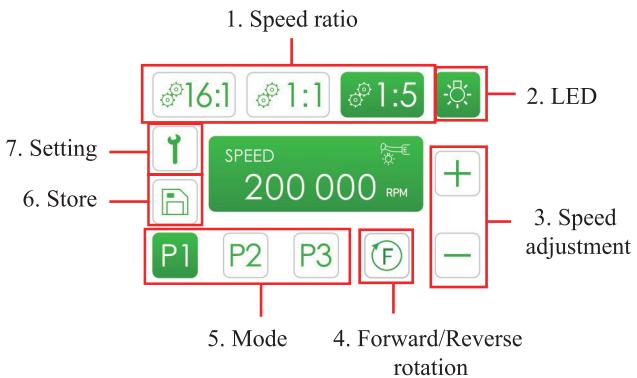
5.4 Make sure that the foot pedal control calibration is performed before using the device for the first time.

5.5 Icon description

Icon	Name	Function
	Mode	Select the preset fixed speed. (P1/P2/P3)
	Speed ratio	Select the speed of contra-angle (16:1/1:1/1:5)
	Speed adjustment	Increase speed
	Speed adjustment	Decrease speed
	Store	Store the set parameters
	Forward/Reverse rotation	Control the forward and reverse rotation of motor
	Speed	Display the set operating speed
	Setting	Enter the setting interface
	Manual mode	Enter manual mode adjusting interface
	Calibration	Enter calibration interface

FACT SET	Restore factory setting	Restore the system to factory setting.
Lang	Language selection	Enter language setting interface
	Exit	Exit the submenu setting mode
Start	Start	Start to activate the motor.
Stop	Stop	Stop the motor
Light	LED	Turn on/off the motor LED.
200 000 RPM	Speed adjustment	Adjust the speed formerly set in the manual mode. Touch the progress bark to increase or decrease the speed.

5.6 Basic function adjustment on main unit controlling interface



5.6.1 Speed ratio: Select the corresponding speed ratio by touching the speed ratio key. The color of the key will change when it is selected.

When using a contra-angle handpiece with a gear ratio of 16:1, touch the 16:1 speed ratio button.
When using a contra-angle handpiece with a gear ratio of 1:1, touch the 1:1 speed ratio button.
When using a contra-angle handpiece with a gear ratio of 1:5, touch the 1:5 speed ratio button.
5.6.2 LED: Turn on/off the LED light on the motor by touching the LED key.
5.6.3 Speed adjustment: Adjust the speed of the motor by touching the Speed adjustment key.
5.6.4 Forward/reverse rotation: Switch to the forward rotation or reverse rotation by touching the Forward/reverse rotation key.
5.6.5 Mode: Select the working speed of corresponding mode by touching the Mode key.
5.6.6 Store: Store the set speed ratio, speed, mode, forward rotation/ reverse rotation, and LED by touching the Store key.
5.6.7 Setting: Enter setting interface by touching the Setting key.

5.7 Basic funtion adjustment in setting interface

5.7.1 In setting interface, touch key “8” Manual Mode key to enter manual mode interface. Under the manual mode state, the rotation of motor can be directly controlled without foot pedal. Touch Speed Ratio key to select corresponding speed ratio. Touch Speed key to adjust the speed. Touch Start key, Stop key, Forward/Reverse Rotation key, or LED key to control the output of motor. Touch the Exit key to exit the manual mode interface.
5.7.2 In setting interface, touch key “9” Calibration key, touch Start key, and the interface shown in Figure 8,9 would pop up. Fully press down the foot pedal until 100% is displayed, then release the foot pedal to finish the calibration.
5.7.3 In setting interface, touch key “10” Restore Factory Setting key, click “OK” to enter interface shown in Figure 10, and decide whether to restore the factory setting by clicking “OK” or “Cancel” key.
5.7.4 In setting interface, touch key “11” to enter interface shown in Figure 7 for language selection.
5.7.5 In the setting interface, touch key “12” to exit sub-menu setting mode.

6 Safety precautions

⚠ Cautions:

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

6.2 The accuracy of the speed monitoring depends on the high precision performance of the handpiece installed on the micro 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 matching handpiece.

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

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

6.5 Test the dental electric motor before use to ensure accurate operation.

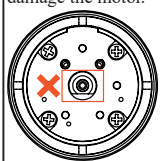
6.6 If the motor is malfunctioning permanently (excessive vibration, much noise and heat generation, etc.), please switch off immediately and return it to the authorized dealer.

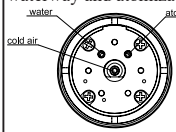
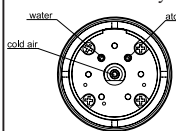
6.7 Clean the control panel with a damp cloth and turn off the power before cleaning.

7 Cleaning, disinfection and sterilization

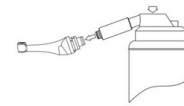
7.1 Motor and Contra-angle handpiece

Steps	Motor	Contra-angle handpiece
	⚠ Warnings: 1. Do not spray any cleaning solution or lubricant to the motor. 2. Do not use an automatic washer-disinfector to clean the motor. 3. Except for the motor, the other parts such as main unit, power adapter and tail are not allowed to be sterilized.	⚠ Warnings: 1. The contra-angle handpieces are not suitable for ultrasonic cleaning. 2. The contra-angle handpiece should not be immersed in strong detergents or disinfectants (alkaline pH>9 or acid pH <5).
Resistance to sterilizing procedure	The motor could be capable of being subjected to 250 cycles of sterilizing procedure.	The contra-angle handpiece could be capable of being subjected to 250 cycles of sterilizing procedure.

Steps	Motor	Contra-angle handpiece
Preparation at the Point of Use	Remove the motor from the motor tail, and wipe the surface of the motor with a soft cloth soaked in cold water(<40°C).	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: Disconnect the contra-angle handpiece from Motor. 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 motor and contra-angle handpiece 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. Disassemble the contra-angle handpiece, motor and motor tail separately according to section 3.5.	
Pre-cleaning	Tools: tray, syringe, hose, clean and dry soft cloth. ①Use a syringe to draw 500ml of purified water to flush the waterway and atomization airway. ⚠ Do not clean the cooling air circuit, otherwise it will damage the motor.  ②Wipe the water stains on the interface with clean cloth. ③Rinse the motor under running water for 2 min. ④Rinse the motor surface with 500ml purified water.	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°C during the washing stage, otherwise the protein will solidify and be difficult to remove.

Steps	Motor	Contra-angle handpiece
Cleaning	⚠ Notice: Never reprocess this device in an ultrasonic device. Otherwise, it will cause the motor failure and damage to its materials. Prevent liquid from flowing into the motor during the cleaning process. **Step1: Clean the inner cavity** ①Use a syringe to draw 500ml of detergent（RUHOF AW PLUS WITH APA）to rinse the waterway and atomization airway.  ②Wipe the water stains on the interface with clean cloth. **Step2:Wipe the surface** ①Soak a clean soft cloth with detergent (RUHOF AW PLUS WITH APA) and then wipe the surface of the motor thoroughly for 5 times. Replace with a clean soft cloth after each wipe. If there are still visible contaminants, wipe repeatedly until there are no visible contaminants. ②Soak a clean soft cloth with detergent and then wipe the surface of the motor thoroughly for 5 min. If there are still visible contaminants, wipe repeatedly until there are no visible contaminants. **Step3: Scrub the surface** Scrub the motor thoroughly with an instrument brush with detergent for 3 min. **Step4: Rinse** ①Use a syringe to draw 500ml of purified water to rinse the waterway and atomization airway.  ②Wipe the water stains on the interface with clean cloth. **Step5：Rinse the surface** ①Rinse the motor surface with 500ml purified water to remove the residual detergent. Note: Do not rinse the interface directly to prevent liquid from flowing into the motor.	⚠ Notice: Never reprocess this device in an ultrasonic device. **Automatic cleaning** The washer-disinfector should meet the requirements of the ISO 15883. Place the contra-angle handpiece in the washer-disinfector carefully. Ensure that contra-angle handpieces can not move freely in the washer-disinfector. The contra-angle handpice 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 dorte(Dr. Weigert) Acc. To EN ISO 17664 Note: No manual reprocessing methods are require for these devices. If a manual reprocessing method has to be used, please validate it prior to use. The above automated cleaning and disinfection procedures was validated.

Steps	Motor	Contra-angle handpiece
Drying	Drying should be conducted after cleaning. Wipe off the residual water on the motor surface with dry absorbent soft cloth.	Drying of outside of instrument through drying cycle of washer-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 contra-angle handpiece 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 contra-angle handpiece 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 15 minutes. Note: 1).Dry the contra-angle handpiece 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

Steps	Motor	Contra-angle handpiece
Maintenance	1. Visual inspection: Before packaging and sterilization, make sure that the motor has been maintained according to manufacturer's instruction. Visual inspection for cleanliness of the motor. Check the motor: 1. If there is still visible stain on the motor after cleaning, the entire cleaning process must be repeated. If the motor is obviously damaged, smashed, detached, corroded or bent, it must be discarded and not allowed to continue to be used.	1. Functional Test and Visual inspection Visually inspect the cleanliness of the Handpiece, and then reassemble it. 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. Use of an 510(k) cleared lubricant (i.e. NSK PANA-SPRAY) 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 handpiece to inject oil for 1-2 seconds. 

Steps	Motor	Contra-angle handpiece
Packaging	The motor should be packaged into the sterilization bag quickly. **Precautions** 1) Only use a legally marketed 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	The contra-angle handpiece should be quickly packaged in a medical sterilization bag (or special holder, sterile box). Precautions 1) Only use a legally marketed 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 parameters: Exposure temperature: 132℃, Exposure time: 4 min, Drying time: 20 min.	Sterilization parameters: Exposure temperature: 132℃, Exposure time: 4 min, Drying time: 20 min.
Precautions	1) Before sterilization, the device must be effectively cleaned. 2) Before sterilization, please read the Instruction Manual. 3) Do not use hot air sterilization and radiation sterilization as this may result in damage to the product; 4) Please use the recommended sterilization procedures for sterilization. It is not recommended to sterilize with other sterilization procedures such as ethylene oxide, formaldehyde and low temperature plasma sterilization.	
Storage	Sterilized devices should be stored in a dry, clean and dust-free environment, refer to label and instructions for use.	

7.2 Motor tail

After each use, please continue to flush the water tube with purified or deionized water for 1 minute.

At the end of a day, disassemble the motor tail from the main unit and motor. Please connect one end of the transparent hose provided to the water pipe interface, and connect the other end to the interface of the automatic washer-disinfector, as shown blow.

As shown in Figure 1 below, connect the interface 1 of the transparent hose, to the water inlet (Figure 2 arrow) of the motor tail. And connect the interface 2 of the transparent hose to the water outlet pipe with an outer diameter of 4mm of the automatic washer-disinfector.

Figure 12

Figure 13

After connecting, start the automatic washer-disinfector to perform the following steps.

• Flush the water tube with diluted OPA disinfectant for 5min.

• Flush the water tube with sterile water for 5min and remove the residual cleaning agent from the water tube.

• Turn off the water source, let air only for 1 min, and remove the residual water in the water tube.

7.3 Main unit

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

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

8 Troubleshooting

Fault	Cause	Solution
Error 01	Step on the foot pedal before turning on the device, so that the voltage is too high.	Release the foot pedal and reboot.
Error 02	The input voltage is too high or too low.	Check whether the power adapter is right.
Error 03	Motor abnormality	Check whether the motor is well connected or replace the motor.

If the problem still cannot be solved, please contact our local

distributor or our company.
Note: The device should be used with the original accessories. Do not use related accessories of other brands, so as to avoid damage to the electric motor or cause other dangers.
Warning: The device shall not be changed or modified without the express consent or authorization of Guilin Woodpecker Medical Instrument Co., Ltd.

9 Storage and transport

9.1 The device should be handled carefully. Be sure that it is far from the vibration, and installed or stored 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 device should be stored in a room where the relative humidity is 10%~93%, atmospheric pressure is 70kPa~106kPa, and the temperature is -20℃~+55℃.
9.4 Excessive impact and shake should be prevented during transport. Lay it carefully and lightly.
9.5 Do not put the device together with dangerous goods during transport. Avoid being exposed to sun, rain, and snow during transport.

10 After-sales service

If this device cannot work normally due to quality problems from the date of sale, we will be responsible for repairs with the warranty card. Please refer to the Warranty Card for details of warranty.

11 Environment protection

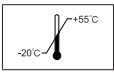
Part	Toxic or harmful substances or elements					
	(Pb)	(Hg)	(Cd)	(Cr6+)	(PBB)	(PBDE)
Main unit	○	○	○	○	○	○
Motor handpiece	○	○	○	○	○	○

Power adapter	○	○	○	○	○	○
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, and after use, please recycle or dispose this product after according to the methods in local laws and regulations

12 Symbol instruction

	Date of manufacture		Manufacturer
	Type B applied part		ClassIIequipment
	Used indoor only		Follow instructions for use
	Humidity limitation		Temperature limitation
	Can be autoclaved	IPX0	Ordinary equipment
	Non-sterile	Rx only	Prescription device
	Appliance compliance WEEE directive		

	Atmospheric pressure for storage

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.

Serial number	Cable name	cable length (m)	Cable type
1	Power cord (input)	1.2m	Unshielded parallel line
2	Power cord (output)	1.2m	Unshielded parallel line
3	Handle tail	1.8m	Unshielded parallel line

Technical Description Concerning Electromagnetic Emission

Table 1: Declaration - electromagnetic emissions

Guidance and manufacturer's declaration - electromagnetic emissions		
The model MT2 is intended for use in the electromagnetic environment specified below. The customer or the user of the model MT2 should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The model MT2 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 MT2 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 MT2 is intended for use in the electromagnetic environment specified below. The customer or the user of the model MT2 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 %.
Electric 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 ±0.5, ±1, ±2kV line to earth	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 % UT (>95% dip in UT.) for 0.5 cycle <5 % UT (>95% dip in UT.) for 1 cycle 70% UT (30% dip in UT) for 25 cycles <5% UT (>95 % dip in UT) for 250 cycles	<5 % UT (>95% dip in UT.) for 0.5 cycle <5 % UT (>95% dip in UT.) for 1 cycle 70% UT (30% dip in UT) for 25 cycles <5% UT (>95 % dip in UT) for 250 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the models MT2 requires continued operation during power mains interruptions, it is recommended that the models MT2 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 UT 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 MT2 is intended for use in.the electromagnetic environment specified below. The customer or the user of the models MT2 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 MT2, 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 MT2 is used exceeds the applicable RF compliance level above, the model MT2 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model MT2.
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 MT2

Recommended separation distances between portable and mobile RF communications equipment and the model MT2			
The model MT2 is intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the model MT2 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model MT2 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.