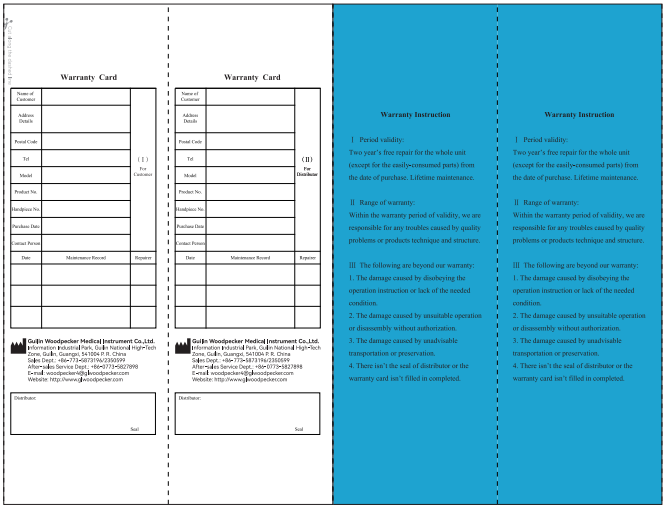
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尺寸/SIZE	130×190mm, 出血 6mm	版本/REV.	V1.2
材质/MATERIAL	120g 铜版纸		
工艺/PROCESS	/		
装订&注释/ bind (books etc) &NOTES	骑马订 保修卡正反面印刷需对应，印刷于于同一页纸上。	印刷颜色/COLORS	4X4 CMYK
修订日期/DATE	2024 年 11 月 28 日		

请勿打印此页，仅供参考。/DO NOT PRINT THIS PAGE,REFERENCE ONLY.

保修卡正反面印刷需对应，印刷于同一页纸上。



Warranty Card

Name of Customer	
Address Details	
Postal Code	
Tel	
Model	
Product No.	
Handpiece No.	
Purchase Date	
Contact Person	

(I) For Customer

Date	Maintenance Record	Repairer

Guilin Woodpecker Medical Instrument Co.,Ltd.
Information Industrial Park, Guilin National High-Tech Zone, Guilin, Guangxi, 541004 P. R. China
Sales Dept.: +86-773-5873196/2350399
After-sales Service Dept.: +86-0773-5827898
E-mail: woodpecker4@woodpecker.com
Website: http://www.woodpecker.com

Distributor:

Seal

Warranty Card

Name of Customer	
Address Details	
Postal Code	
Tel	
Model	
Product No.	
Handpiece No.	
Purchase Date	
Contact Person	

(II) For Distributor

Date	Maintenance Record	Repairer

Guilin Woodpecker Medical Instrument Co.,Ltd.
Information Industrial Park, Guilin National High-Tech Zone, Guilin, Guangxi, 541004 P. R. China
Sales Dept.: +86-773-5873196/2350399
After-sales Service Dept.: +86-0773-5827898
E-mail: woodpecker4@woodpecker.com
Website: http://www.woodpecker.com

Distributor:

Seal

Warranty Instruction

Ⅰ Period validity:
Two year's free repair for the whole unit (except for the easily-consumed parts) from the date of purchase. Lifetime maintenance.

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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Ⅰ Period validity:
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4. There isn't the seal of distributor or the warranty card isn't filled in completed.

CE 0197

Surgic Star SE/Surgic Star

MANUAL OF USE AND MAINTENANCE



Please read this manual before operating

ZMN-SM-927 V1.1-20241123

Guilin Woodpecker Medical Instrument Co., Ltd.

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1. Introduction

1.1 Foreword

Before proceeding with the installation, use, maintenance or any other activities on the equipment please read the manual carefully.
Important: To avoid causing personal injuries or damages to property, read all the points concerning “safety requirement” contained in this manual with particular attention.
Depending on the level of risk involved, safety requirements are classed under the following indications:

⚠ **Danger (always referred to personal injury)**

⚠ **Warning (referred to possible damage to property)**

• Do not position the device in a location where it is difficult to disconnect the unit.
• In the presence of electromagnetic interference environment, the device may be malfunctioning. Do not install Surgic Star SE/Surgic Star near equipment that releases magnetic waves.
• Any unauthorized modifications to the device may cause danger. Please do not try!
• Surgic Star SE/Surgic Star requires special precautions for EMC and needs to be installed and put into service according to the EMC environment.
• Device with electromagnetic emitter will affect the normal operation of the Surgic Star SE/Surgic Star, so do not run both devices at the same time.
• To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective grounding.
• Any serious incident that has occurred in relation to the device should be reported to manufacturer and the competent authority of the Member State in which the user and/or patient is located.
• The purpose of this manual is to ensure that operators are aware of the safety requirements, of the installation procedures and of the instructions for correct use and maintenance of the apparatus.
• The user is not authorized to tamper with the equipment under any circumstances. If any problems are encountered, please contact a Woodpecker Service Centre.
• Any attempts on the part of the user or any unauthorized personnel to tamper with or alter the apparatus will invalidate the warranty and release the Manufacturers from any liability in respect of any harm or damage to persons or property.
• The information and illustration contained in this manual are up-dated to the date of publication indicated on the first page.
• WOODPECKER is committed to continuous updating of the products,

which may entail changes to components of the equipment. If there are any discrepancies between the descriptions contained in this manual and your equipment, please contact your dealer or WOOKPECKER After-sale Service for explanations.

• Using this manual for purposes other than those relating to the installation, use and maintenance of the equipment is strictly prohibited.

1.2 Description of the Device

Thanks to its controlled three-dimensional ultrasound oscillations, the original Surgic Star SE/Surgic Star technique rings in a new age for osteotomy and osteoplasty in Implantology, Periodontology, Endodontics and Orthodontic Surgery. Its main features are:

Micrometric cutting: Maximum surgical precision and intra-operative sensibility;

Selective cutting: Maximum safety for the soft tissues;

Cavitation effect: Maximum intra-operative visibility (bloodless field);

The equipment has an automatic tuning circuit that offsets wear of the tips, thus ensuring work in constant conditions of maximum efficiency.

1.3 Intended Use, Intended User and Intended Patient

1.3.1 Intended Use: The Surgic Star SE/Surgic Star is an ultrasonic surgical system that enables osteotomy and osteoplasty techniques to be applied to in anatomical situation. This equipment can be used in the following fields:

a) Oral surgery;
b) Orthopedic surgery;
c) Maxillofacial surgery;
d) Cosmetic surgery;
e) Neurosurgery;
f) Otolaryngology;
g) Implant surgery.

1.3.2 Intended User: Professional dentists and surgeons

⚠ WARNING

• Carefully read and apply the recommendations given in this manual to avoid all risk to patient and/or user safety. Failure to do so may lead to serious injury to the patient and/or operator.

• This product is intended for use only by trained dental personnel and must be surgeons in dental practices surgical and operation theatre room.

• Only use the device for its intended use. Failure to comply with this requirement may lead to serious injury to the patient or operator, and damage/ failure of the device.

1.3.3 Intended Patient: Patients who need treatment procedure such as osteotomy, osteoplasty, sinus lift, soft tissue dissection, tooth extraction, implantation,

periodontal surgery and endodontic surgery.

1.4 Safety requirements

Woodpecker will not accept any liability for direct or incidental personal injury or damage to property in the following cases:
1.4.1 If the equipment is used for purposes other than that for which it is intended;
1.4.2 If the equipment is not used in accordance with all the instructions and requirements described in this manual;
1.4.3 If the wiring system in the room where the equipment is used does not comply with the application standard and appropriate requirements;
1.4.4 If any assembly operations, extensions, settings, alterations or repairs have been carried out by personnel not authorized by Woodpecker;
1.4.5 If the environmental conditions in which the device is kept and stored do not comply with the requirements indicated in the chapter on technical specifications.

1.5 Obligation to notify authorities

In the European Union, operators or users must report all serious events related to medical devices to the competent authority of the Member State in which they are established.

1.6 Safety notices

Obligations of the user:
● Use only fault-free materials that comply with the "specified data".
● Protect yourself, the patient and any third parties from danger. To do this, observe the safety information.
● Observe the "intended use"
Preventing the spread of infections and cross contamination:
Prevent the spread of infections and cross contamination between patients, users, and third parties. Sterilize equipment after each patient.
Take the appropriate hygiene measures, such as, wear protective gloves.
The technical personnel must be trained in the reprocessing of medical devices.

⚠ WARNING

Infections and cross contamination!
Prevent infections and cross contamination between patients, users and third parties.
➢ Before initial start-up and after every treatment, the product must be cleaned, disinfected, lubricated and sterilized.
➢ Before sending the unit for repairs, all parts must be properly processed (cleaned/disinfected).
➢ Prior to disassembly/disposal of the unit, all parts must be properly processed (cleaned/disinfected).
➢ All new or repaired products are delivered in no sterile conditions. Before being used for treatments, all new or repaired products should be cleaned, disinfected and sterilization following the instructions provided under point 8 strictly

⚠ **Danger: Qualified and specialized personnel.**
This equipment may be used only by specialized and suitably trained personnel such as surgeons. If correctly used, this equipment does not give rise to side effects. Improper use, on the other hand, will give rise to transmission of heat to the tissues.

⚠ **Danger: Intended use.**
Use the equipment solely for the purpose for which it is intended (see point 1.3), failure to comply with this requirement could lead to serious harm to the patient and/or to the operator and/or damage to/failure of the equipment.

⚠ **Danger: Contraindications.**
Do not use the Surgic Star SE/Surgic Star on patients with pace-makers or other implantable electronic devices. The same requirement applies also to the operator.

⚠ **Danger: Contraindications.**
Interference by other equipment.
An electrosurgical knife of other electrosurgical devices near the Surgic Star SE/ Surgic Star device, may interfere with its correct functioning.

⚠ **Danger: Only the power supply delivered with the unit or an authorized spare part may be used.**
Use only original Woodpecker accessories and spare parts.Unapproved spare parts and accessories may lead to increased emissions or to reduced immunity to interference.

⚠ **Danger: Heating of the head of the contra-angle handpiece.**
If the contra-angle handpiece is defective, the area around the instrument head may heat up. This leads to a risk of burning the patient's oral mucosa.

⚠ **Danger: Check the condition of the device before treatment.**
Ensure that no water is present under the device. Before each treatment always check that the equipment is in proper working order and that the accessories are efficient. Do not carry out the treatment if any problems are encountered in operating the device. If there are device-related issues, please contact an authorized technical service center.

⚠ **Danger: Malfunction or damage.**
Discontinue use immediately in case of malfunction, failure or no reaction of the display, unusual or different sounds or damage.
Damaged products may cause injury. Notify your local distributors or the manufacturer.

⚠ **Danger: Device Repair.**
Do not attempt to repair Surgic Star SE/Surgic Star yourself. Please contact your local distributors or local authorized customer service for repairs.

⚠ **Danger: Tips breakage and wear.**
The high-frequency vibrations and wear may, very occasionally, lead to breakage of the tip. Tips of which the shape has been changed or which are otherwise damaged are liable to break during use. Any such tips should definitely not be used. It is necessary to instruct the patient to breathe though his nose during the treatment in order to avoid ingestion of the broken off fragment of the tip.

⚠ **Danger: Do not install this equipment anywhere there is a risk of explosions.**
This equipment cannot function in places where there is an inflammable atmosphere. (anaesthetic mixture, oxygen, etc)

⚠ **Danger: Personnel injury.**
The foot control of the Surgic Star SE/Surgic Star must not be activated when the door of the peristaltic pump open(Fig.2—Ref.A). Moving parts could injure the operator.

⚠**Danger: Contraindication.**
Do not carry out this treatment on metal or ceramic prosthetic artifacts. The ultrasonic vibrations could lead to decrementing of such artifacts.

⚠ **Danger: Contraindication.**

After sterilizing the handpiece, the torque wrench or all other sterilisable accessories in the autoclave, wait for them to have cooled completely before reusing.

⚠ **Danger: The device can not be used in MRI environment.**

⚠ **Danger: Contraindications.**
Interference with other equipment.
Although the Surgic Star SE/Surgic Star complies with IEC 60601-1-2 standards, it may still interfere with nearby equipment.
Surgic Star SE/Surgic Star must not be used near, or stacked on other equipment. Install Surgic Star SE/Surgic Star at a safe distance from life-support equipment. If necessary, however, prior their use, please check and monitor that the device and all other equipment function correctly in that layout.

⚠ **Danger: Control of infections.**
For maximum safety of both the patient and the operator, clean, disinfect and sterilize the handpiece, the tips and the torque wrench after each treatment.

⚠ **Danger: Overheat**
The surface temperature of the applied part may reach 48°C under normal conditions and up to 51°C in case of a single fault. Please beware of burns.

⚠ **Warning: Ensure the electrical contacts inside the cord connector are dry.**
Before connecting the handpiece to the device, make sure the electrical contacts of the connector are completely dry, in particular after the autoclave sterilization cycle. If necessary, dry the contacts by blowing air onto them with the syringe.

⚠ **Warning: To use the device correctly, it is necessary to press the foot control and start it up without letting the tip rest on the part to be treated. This will allow the electronic circuit to detect the point where resonance of the tip is without any interference, thus enabling optimum performance.**
If this is not done, contact with the part to be treated or with other surfaces before start-up could cause tripping of the protection systems.

⚠ **Warning: For spray treatment, use only tips through which liquid is passed.**

2. Identification data

2.1 Identification data

Providing an accurate model description including the serial number will enable our After-Sale Service to respond quickly and efficiently.
Please always provide the above information when contacting a Woodpecker Service Centre.

2.2 Device Data Plate

Each device has its own data plate, on which technical specifications and serial number are indicated. The data plate is on the rear of the device. Additional details can be found in this manual (see section 14).

3. Testing of the device

All the devices are checked and tested by Woodpecker completely, including all the parts.
When testing, all the parts will work in intermittent operation.
The tests focus on identifying any malfunctioning components. This procedure ensures the functionality and reliability of the entire system.

4. Delivery

Avoid the excessive concussion, shake, cover during delivery.
Do not mix the device with hazardous materials.
Avoid the sunlight, rain and snow during delivery.

5. List of materials included in the supply

The materials included in the supply may vary as per promotional campaigns.

⚠ **Warning: The handpiece and cord can't be detached.**

Number	Name	Fig	Remark
1	Device	Fig.1—Ref.A	Key functional component
2	Foot control	Fig.1—Ref.B	Key functional component
3	Normal saline connector	Fig.1—Ref.C	Key functional component
4	Hook	Fig.1—Ref.D	Key functional component
5	Pump tube	Fig.1—Ref.E	Key functional component

Number	Name	Fig	Remark
6	Peristaltic pump	Fig.1—Ref.F	Key functional component
7	Ultrasonic Handpiece	Fig.1—Ref.G	Key functional component
8	Silicone handpiece holder	Fig.1—Ref.H	Key functional component
9	Connecting joint of pump tubing	Fig.1—Ref.J	Key functional component
10	Torque wrench	Fig.1—Ref.K	Real accessory
11	Sterilize box	Fig.1—Ref.L	Real accessory
12	Tip Holder and Tips	Fig.1—Ref.M	Real accessory and Key functional component
13	Power-supply cable	Fig.1—Ref.N	Key functional component
14	Motor handpiece	Fig.1—Ref.I	Key functional component
15	Dental contra-angle handpiece	Fig.1—Ref.P	Key functional component



Fig.1

6. Installation

6.1 Safety requirements during Installation

⚠ **Danger: The wiring system where the apparatus is installed and used must comply with the applicable standards and the relevant electrical safety requirements.**

⚠ **Danger: Do not install the apparatus in places where there is a risk of explosion. Do not use the device in areas with inflammable materials (e.g.**

anaesthetic mixtures, oxygen, etc).

⚠ Danger: Install the apparatus in a place where it will be protected from blows and from accidental sprays of water or other liquids.

⚠ Danger: Do not install the device on or in the vicinity of sources of heat. Install it where there is an adequate circulation of air around it. Leave sufficient free space around it, in particular with reference to the fan on the rear. (Fig.3)

⚠ Warning: Do not expose the apparatus to direct sunlight or to sources of UV light.

⚠ Warning: The apparatus is transportable, however it must be handled with care when it is moved.

⚠ Warning: Before connecting the cord to the device, make sure that the electrical contacts are completely dry. If necessary, dry them with the air syringe.

⚠ Warning: To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

⚠ Warning: The capacity of brine bottle hang on brine bottle holder should not be more than 1000mL, and the weight should not exceed 1kg.

⚠ Warning: Please turn off the power supply immediately after use.

⚠ Warning: No changes can be made to this device.

6.2 Initial installation

To ensure perfect operation of the equipment, it is installed by technical personnel authorized by Woodpecker. The device should be installed in a suitable place for its convenient use.

The technician must:

6.2.1 Install the device in a suitable place;

6.2.2 Explain the main aspects of correct installation to the user;

6.2.3 Fill in the installation form, including the purchaser's data;

6.2.4 Submit the installation form to Woodpecker to ensure traceability and warranty activation.



Fig.2

6.3 Connection the accessories

The accessories listed as follow should be connected with the Surgic Star SE/ Surgic Star:

6.3.1 Insert the pump tube into the peristaltic pump, proceeding as follows:

a) Open the door (Fig.2—Ref.A) as far as it will go.

b) Position the tube in the impeller (Fig.2—Ref.B,C).

c) Close the door completely (Fig.2—Ref.D).

⚠ **Danger: personnel injury.**

The foot control of the Surgic Star SE/Surgic Star must not be activated when the door of the peristaltic pump open. (Fig.2—Ref.A). Moving parts could injure the operator.

6.3.2 Insert the hook into the holes provided for it (Fig.3— Ref.A);

6.3.3 Connect the foot control to the casting of the device by inserting the plug into the foot control socket (Fig.3—Ref.E);

6.3.4 Plug the power cable into the connector on the casting of the device (Fig.3—Ref.D) and then into the power outlet;

6.3.5 Insert the plug of handpiece tail line to the cord connector on the device; (Fig.3—Ref.B);

6.3.6 Connect the output of the flow control system to the ultrasonic handpiece and Dental contra-angle handpiece;

6.3.7 Connect the other end of the flow control system (normal saline connector) to the bag containing the appropriate treatment liquid;

6.3.8 Use the torque wrench to screw the tip (Fig.4) till you hear a clattering sound;

6.3.9 Align the contra-angle handpiece with the motor plug, and then insert the contra-angle handpiece into the motor and tighten it. If the contra- angle handpiece is properly locked, there will be a "click" sound (Fig.5);

6.3.10 After all the accessories are installed, turn on the power switch (Fig.3—Ref.C), then we can use the device.

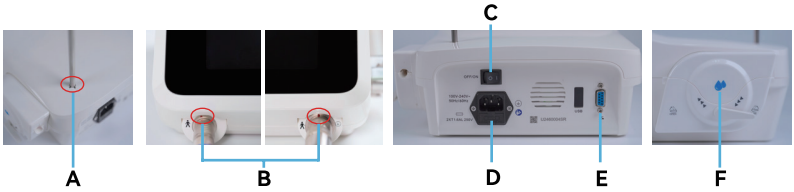


Fig.3

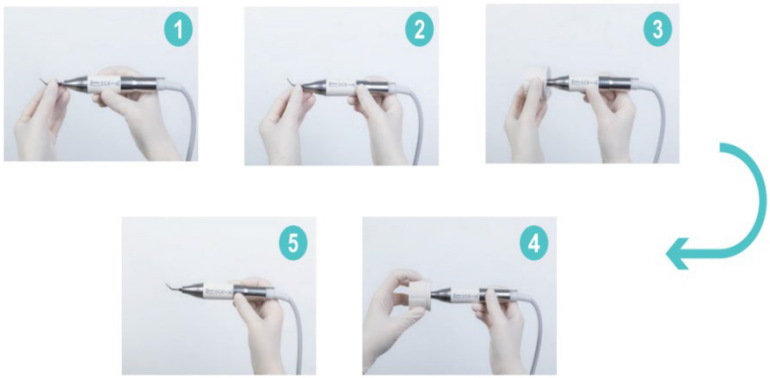


Fig.4

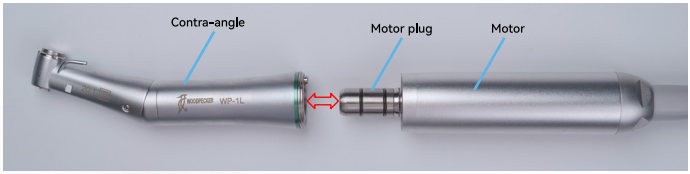


Fig.5



Fig.6

7. Controls

Surgic Star/Surgic Star SE combines three systems: Piezo system, Implant system and Surgical system.

7.1 Piezo system

When "Piezo" is selected, the device enters the Piezo system.

7.1.1 Description of the controls

This section illustrates the parts of the front panel of Piezo system, allowing for immediate identification of the controls described in this manual.

(1) Description of Bone function:

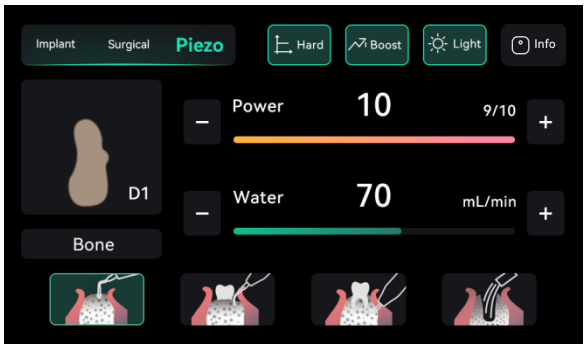


Fig.7

As shown in Fig.7, when the mode "Bone" is selected in the green frame, the device is in bone cutting mode.

In this mode, you can adjust the "Power" and "Water volume" by sliding. Among them, the "Power" in the 1~10 levels respectively correspond to the bone density pictures “D4~D1” on the left.

This interface also includes the "Hard/Soft" button to switch the bone cutting depth between Surface Cortical Bone and Deep Cancellous Bone.

The "Boost" button can increase the current power by 25% with one button, which is convenient for efficiency improvement.

With the "Light" button, you can switch on/off the LED light.

With the "Info" button, you can visit the official website of Woodpecker, view the product SN code, etc.

(2) Description of Perio function:

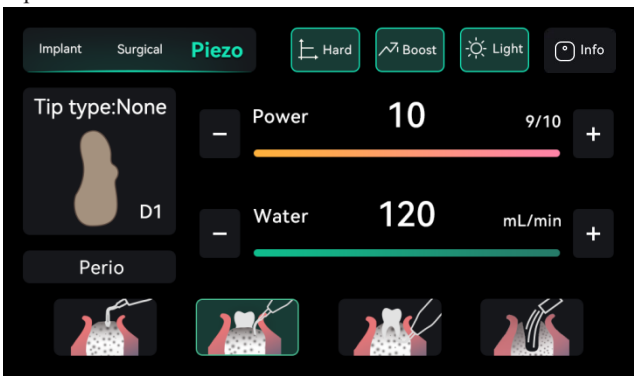


Fig.8

As shown in Fig.8, when the mode "Perio" is selected in the green frame, the device is in periodontal mode. In this mode, the function buttons are the same as

the bone cutting mode.
(3) Description of Endo function:

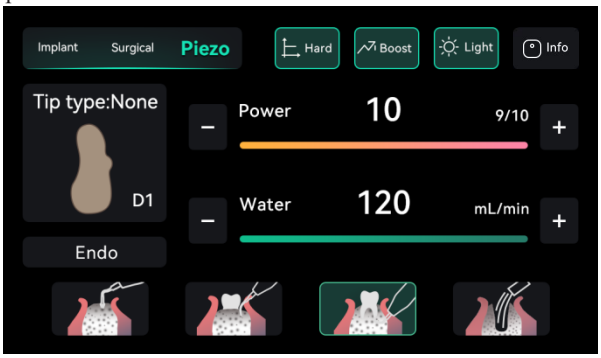


Fig.9

As shown in Fig.9, when the mode "Endo" is selected in the green frame, the device is in endo mode. In this mode, the function buttons are the same as the bone cutting mode.

(4) Description of rinsing function:

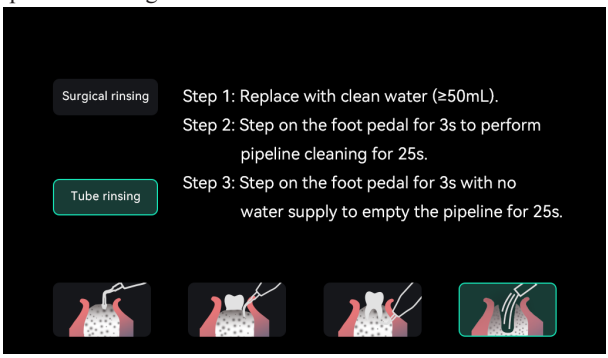


Fig.10

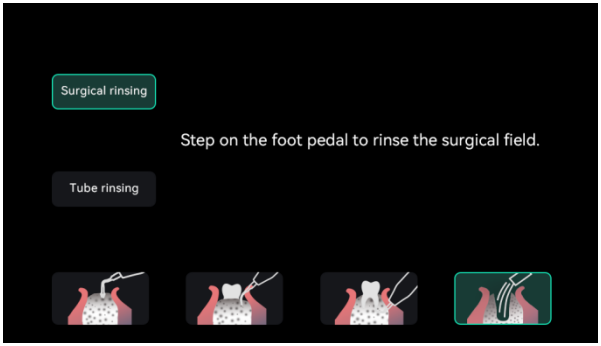


Fig.11

As shown in Fig.10 and Fig.11, when the mode "Rinsing" is selected in the green frame, the device is in rinsing mode. In this mode, the device has only the water output function and no ultrasonic vibration is output. It is divided into the "Tube rinsing" mode and "Surgical rinsing" mode. "Tube rinsing" mode shown in Fig.10, is used to flush the pipeline with clean water after the operation; "Surgical rinsing " mode shown in Fig.11, allows adjustment of the amount of water output each time you step on the pedal.

(5) Alarm interface diagram:

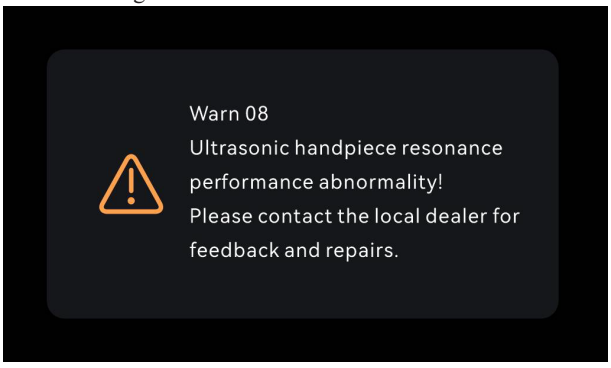


Fig.12

When the system is abnormal, the system will pop up the alarm interface, as shown in Fig.12

7.1.2 Description of the display and functions

As shown in Fig.7-11, the Piezo system includes the following functions: Bone, Perio, Endo, and Rinsing.

Note: When performing treatment at a high level, pay attention to the use of lifting and cutting techniques to make the cooling water fill and cool the working tip, and avoid tissue contact with the working tip that is not covered by water

mist, especially the bending back of the working tip.
7.1.2.1 Bone function (Fig.7)
In Bone function, both water and power models are available.
Ten power levels are divided as follows:
a) Power 9-10: D1, Very high bone density
b) Power 6-8: D2, High bone density
c) Power 3-5: D3, Middle bone density
d) Power 1-2: D4, Low bone density
7.1.2.2 Perio function (Fig.8)
In Perio function, both water and power models are available.
7.1.2.3 Endo function (Fig.9)
In Endo function, both water and power models are available.
7.1.2.4 Tube rinsing function (Fig.10)
In this function, press the foot control to activate the tube cleaning process. (Recommended cleaning duration: ≥ 25s)
7.1.2.5 Surgical rinsing function (Fig.11)
In this function, step on the foot control once to output a certain amount of water. The water volume is adjustable within 0.5~5mL/time.

7.2 Implant System

When "Implant" is selected, the device enters the Implant system.
7.2.1 Host Interface
This section illustrates the parts of the front panel of Implant system, enabling the controls described in this manual to be located immediately.
7.2.1.1 Host button control

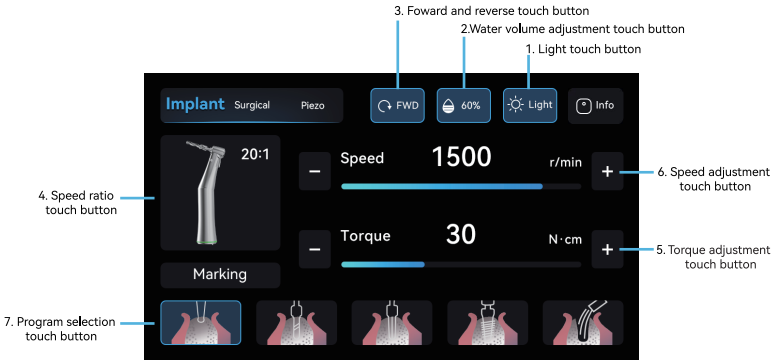


Fig.13

Function Description:
(1) Light touch button
Motor light switch, cycle touch control light on and off.
(2) Water volume adjustment touch button

Click to select the water volume level. There are 6 levels: 0% (no water), 20%, 40%, 60%, 80% and 100%. Press the button repeatedly to cycle through the levels.

(3) Foward and reverse touch button

Used to select the direction of rotation. Each press changes the direction of rotation once.

(4) Speed ratio touch button

Touch the speed ratio button to automatically enter the gear ratio selection page of the contra-angle handpiece, and select the correct gear ratio according to the contra-angle handpiece.

(5) Torque adjustment touch button

Used to set the motor torque range, the button "+" to increase, the button "-" to decrease; keep pressing it will accelerate the change.

(6) Speed adjustment touch button

Used to set the motor speed, button "+" to speed up, button "-" to slow down; holding the button will accelerate the adjustment.

(7) Program selection touch button

Touch the corresponding icon to select the desired program.

The functions of each program are detailed in Section 7.2.2.1.1.

7.2.2 Operation

7.2.2.1 Program selection

Implant system has 5 program functions. There are two ways to select a program:

(1) Select by touching the corresponding icon on the screen.

(2) Switch by pressing the "M" button on the foot control.

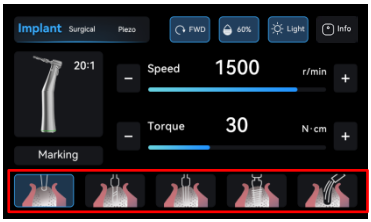




Fig.14

7.2.2.1.1 Program Function Description

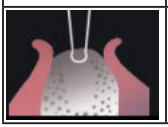
Icon	Function	Description
	Marking	Use a positioning drill to accurately locate the alveolar bone

	Pilot Drilling	Determine the direction and depth of the drill hole
	Template Drilling	Determine the hole diameter
	Implant	Implant dental implant into alveolar bone
	Surgical Rinsing	Step on the foot pedal to rinse the surgical field. Note: In this mode the motor does not rotate, only water comes out, which is convenient for rinsing.
	Tube Rinsing	Step 1: Replace with clean water (≥50mL). Step 2: Step on the foot pedal for 3s to perform pipeline cleaning for 25s. Step 3: Step on the foot pedal for 3s with no water supply to empty the pipeline for 25s. Note: In this mode the motor does not rotate, only water comes out, which is convenient for rinsing.

7.2.2.1.2 Factory Settings

When the device leaves the factory, various parameters such as speed, torque, speed ratio, and water output are pre-set based on actual usage requirements. These parameters can be adjusted within the ranges specified for the current program.

The following table shows the range and factory settings for each parameter:

Icon	Function	Speed (r/min)	Torque (N.cm)	Speed Ratio	Water Volume /%
	Marking	45-2625 1000(D)	5-80 35(D)	16:1, 20:1, 27:1, 20:1(D)	60

	Pilot Drilling	45-2625 800(D)	5-80 35(D)	16:1, 20:1, 27:1, 20:1(D)	60
	Template Drilling	45-2625 600(D)	5-80 35(D)	16:1, 20:1, 27:1, 20:1(D)	60
	Implant	10-100 20(D)	5-80 35(D)	16:1, 20:1, 27:1, 20:1(D)	0
	Rinsing Function	——	——	——	80

Note: "D" in the table refers to the default value.

7.2.2.2 Adjust the default parameters

Within the specified range, the following parameters can be adjusted:

1) Maximum Speed
2) Torque Upper Limit
3) Water Volume
4) Speed Ratio

7.2.2.2.1 Adjust the maximum speed

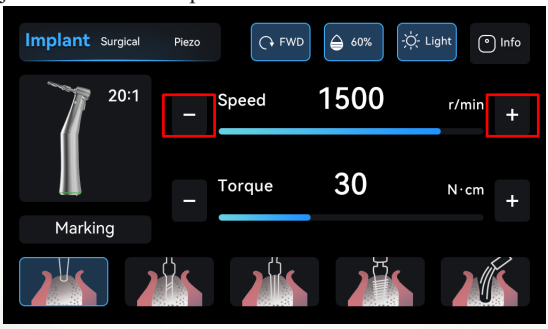


Fig.15

Press the "speed" (+, -) button to adjust the motor speed. Each press of the speed button changes the speed. Press and hold the button for faster speed adjustment.

7.2.2.2.2 Adjust the upper limit of torque

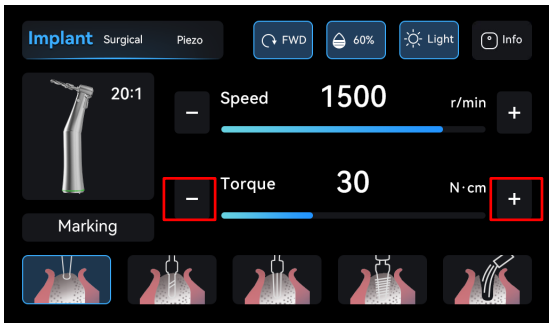


Fig.16

Press the "torque" (+, -) button to adjust the maximum motor torque output. Each press of the torque button changes the torque. Press and hold the button for faster torque adjustment.

7.2.2.2.3 Adjust the amount of water

Press the "water" button on the panel to adjust the water volume. There are 6 levels of water volume, and each press of the button adjusts one level.

The blue "water" button on the foot control can also be used to adjust the water volume.

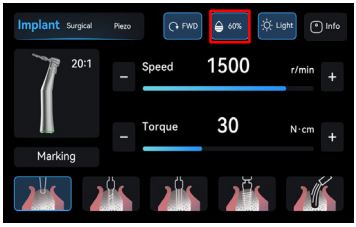




Fig.17

7.2.2.2.4 Adjust the speed ratio

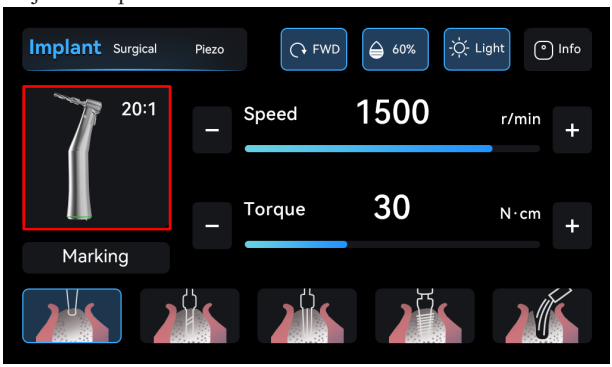


Fig.18

Press the "speed ratio" button to adjust the speed ratio so that it corresponds to the gear ratio of the contra-angle handpiece you want to use.

7.2.2.3 Adjust the direction of motor rotation

Touch the illustrated button to change the direction of motor rotation.

During the treatment, the red "P" button on the foot control can also be used to adjust the direction of motor rotation.

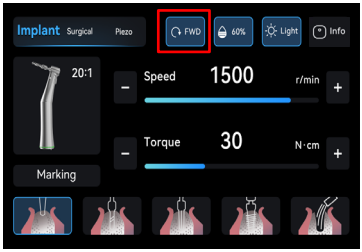




Fig.19

7.2.2.4 Adjust motor light

Use the "Light" button to control the light. After pressing the light button, the light will turn on when the foot control is pressed and will turn off when the foot control is released.

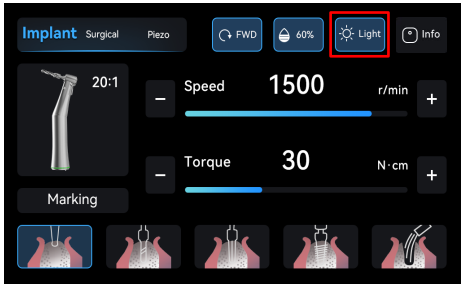


Fig.20

7.3 Surgical system

When "Surgical" is selected, the device enters the Surgical system.

7.3.1 Host Interface

This section illustrates the parts of the front panel of Surgical system, enabling the controls described in this manual to be located immediately.

7.3.1.1 Host button control

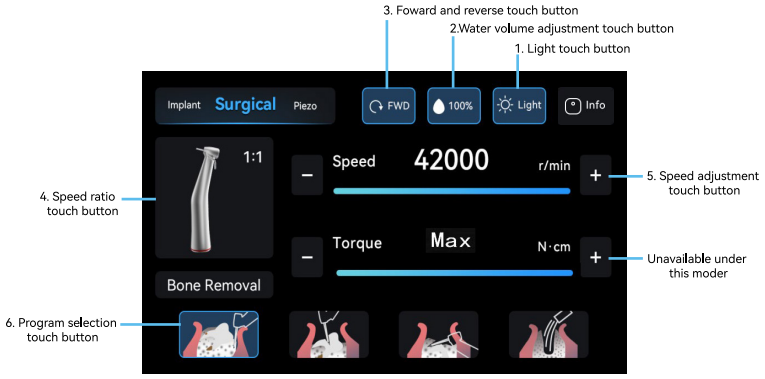


Fig.21

Function Description:

(1) Light touch button

Motor light switch, cycle touch control light on and off.

(2) Water volume adjustment touch button

Click to select the water volume level. There are 6 levels: 0% (no water), 20%, 40%, 60%, 80% and 100%. Press the button repeatedly to cycle through the levels.

(3) Foward and reverse touch button

Used to select the direction of rotation. Each press changes the direction of rotation once.

(4) Speed ratio touch button

Touch the speed ratio button to automatically enter the gear ratio selection page of the contra-angle handpiece, and select the correct gear ratio according to the contra-angle handpiece.

(5) Speed adjustment touch button

Used to set the motor speed, button "+" to speed up, button "-" to slow down; holding the button will accelerate the adjustment.

(6) Program selection touch button

Touch the corresponding icon to select the desired program.

The functions of each program are detailed in Section 7.3.2.1.1.

7.3.2 Operation

7.3.2.1 Program selection

Surgical system has 4 program functions. There are two ways to select a program:

(1) Select by touching the corresponding icon on the screen.

(2) Switch by pressing the "M " button on the foot control.

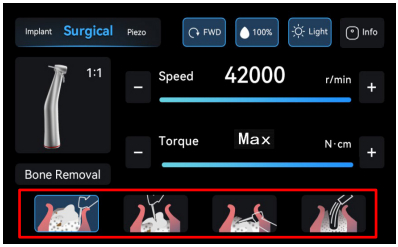




Fig.22

7.3.2.1.1 Program Function Description

Icon	Function	Description
	Bone Removal	Remove alveolar bone that prevents tooth dislocation
	Segmentation	Set teeth apart
	Space Creation	Separate the space between the abutment and adjacent teeth
	Surgical Rinsing	Step on the foot pedal to rinse the surgical field. Note: In this mode the motor does not rotate, only water comes out, which is convenient for rinsing.
	Tube Rinsing	Step 1: Replace with clean water (≥50mL). Step 2: Step on the foot pedal for 3s to perform pipeline cleaning for 25s. Step 3: Step on the foot pedal for 3s with no water supply to empty the pipeline for 25s. Note: In this mode the motor does not rotate, only water comes out, which is convenient for rinsing.

7.3.2.2 Adjust the default parameters

Within the specified range, the following parameters can be adjusted:

1) Maximum Speed

2) Water Volume

3) Speed Ratio

7.3.2.2.1 Adjust the maximum speed

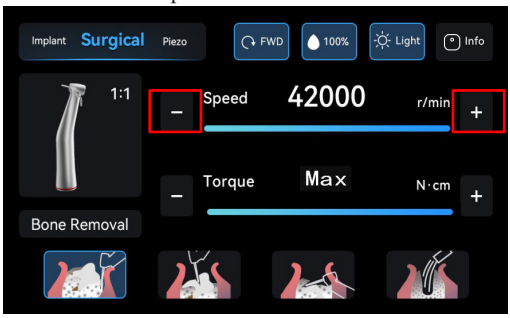


Fig.23

Press the "speed" (+, -) button to adjust the motor speed. Each press of the speed button changes the speed. Press and hold the button for faster speed adjustment.

7.3.2.2.2 Adjust the amount of water

Press the "water" button on the panel to adjust the water volume. There are 6 levels of water volume, and each press of the button adjusts one level.

The blue "water" button on the foot control can also be used to adjust the water volume.

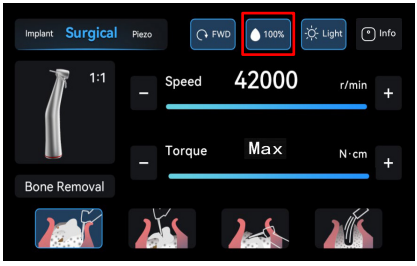




Fig.24

7.3.2.2.3 Adjust the speed ratio

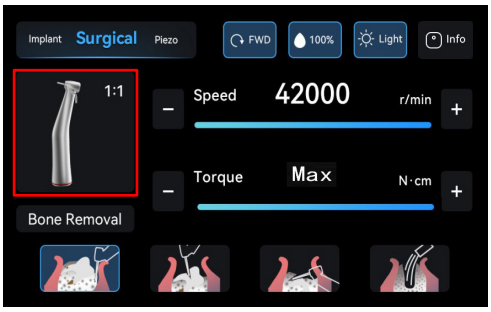


Fig.25

Press the "speed ratio" button to adjust the speed ratio so that it corresponds to the gear ratio of the contra-angle handpiece you want to use.

7.3.2.3 Adjust the direction of motor rotation

Touch the illustrated button to change the direction of motor rotation.

During the treatment, the red "P" button on the foot control can also be used to adjust the direction of motor rotation.

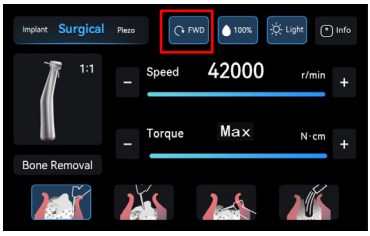




Fig.26

7.3.2.4 Adjust motor light

Use the "Light" button to control the light. After pressing the light button, the light will turn on when the foot control is pressed and will turn off when the foot control is released.

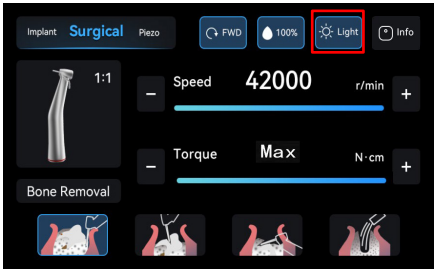


Fig.27

7.4 Safety quit

When the operation is completed, ensure that the contra-angle handpiece and tip are removed from the patient's mouth, the dental drill held by the contra-angle handpiece and tip has completely stopped rotating, and the power has been turned off. Then, remove the dental drill, contra-angle handpiece, tip, ultrasonic handpiece, motor handpiece, and tail line for sterilization.

7.5 Protection systems and alarms

Error Code	Error Description	Treatment Measure
Warn 01	Ultrasonic handpiece internal resistance Abnormality!	Please ensure the handpiece is dry enough or replace it with a new one
Warn 02	Abnormal Motor voltage	Power supply voltage is unstable, ensure that the network voltage is stable! If the alarm persists, please contact your local dealer or the Woodpecker company
Warn 03	Boot Failure	When starting up, the motor handpiece is not connected, make sure that the motor handpiece and the host are connected normally, and then power on again! If the alarm persists, please contact your local dealer or the Woodpecker company
Warn 04	Motor Handpiece not connected	Please check whether the handpiece contact is good! If the alarm persists, please contact your local dealer or the Woodpecker company
Warn 05	The signal line is abnormal	Please contact your local dealer or the Woodpecker company
Warn 06	Ultrasonic handpiece output abnormality	Make sure that the handpiece is connected and the working tip is tightened
Warn 07	Cooling fan abnormality	Check whether the fan is blocked or properly connected
Warn 08	Ultrasonic handpiece resonance performance abnormality	Please contact your local dealer for feedback

7.6 Instruction for use

7.6.1 Open the air intake on the drip system;
7.6.2 Screw the chosen tip onto the Ultrasonic handpiece until it is securely flushed;
7.6.3 To correctly use the torque wrench (Fig.4), proceed as follows:
⚠ **Warning: Do not grip the end part of the handpiece or the cord; only hold the plastic casting (Fig.4) . Do not turn it while fastening the tip.**
a) Hold the body of the handpiece firmly;
b) Turn the wrench in a clockwise direction until the cultch engages (till making clicking sound);
c) The tip is now properly tightened in place;
7.6.4 Ensure the Ultrasonic handpiece is correctly connected to the handpiece connector (Fig.3-Ref.B);
7.6.5 Ensure the Contra-angle handpiece is correctly connected to the handpiece connector (Fig.5);
7.6.6 Check the display to confirm the system setting. If a different system is required, touch the screen to select the correct system;
7.6.7 Check the display to confirm the parameters setting. If different parameters are needed, touch the screen to adjust them as required;

7.7 Rules for keeping the device in proper working order

7.7.1 Periodically check the wear of the tips and replace the tips that show a drop in performance.
7.7.2 Do not alter the shape of the tips by bending or filling them.
7.7.3 Replace any tips that become deformed or damaged by impacts.
7.7.4 Always make sure that any threaded parts and their contact surfaces are perfectly clean.
7.7.5 If a tip becomes too worn, the device will stop working.

7.8 Settings permitted according to insert type

The following table shows the Mode and Power settings permitted for correct use of the device.

Insert	Mode	Power
SS1-SS2-SS3-SS4-SS5-SS6-SS1L-SS1R	Bone	Power1-Power10
SL1-SL2-SL3-SL4-SL5	Bone	Power1-Power10
SC1	Bone	Power1-Power10
SI1-SI2-SI7-SI8-SI9	Bone	Power1-Power10

Insert	Mode	Power
SP1-SP2-SP3-SP4-SP5-SP6-SP7	Perio	Power1-Power10
SE1-SE2-SE3-SE4	Endo	Power1-Power10

7.9 Instructions for wireless foot control

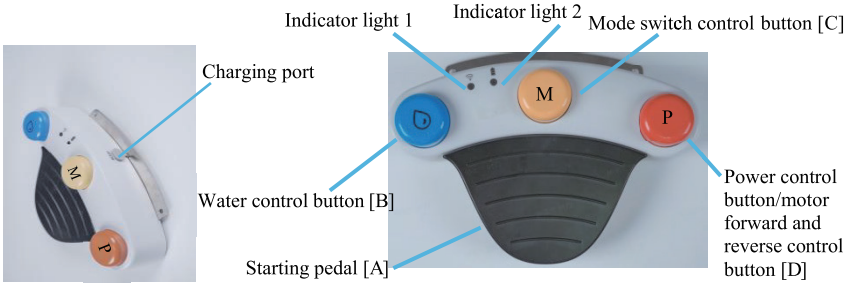


Fig.28

(1) Starting up the wireless foot control:

Long press or press the "A" button for 2~3 seconds to turn on the device. After the device is turned on, the indicator light 2 is steady on, and the indicator light 1 is:

① Steady blue: Bluetooth is connected.

② Flashing blue: Bluetooth is not connected.

(2) Power off the wireless foot control:

① Active power off: Long press or step on the "B" and "D" buttons simultaneously for 3 seconds to turn off the wireless foot control.

② Auto power off: The wireless foot control will automatically shut down 10 minutes after being turned on if no key stomping operation is detected.

③ Low power auto power off: When the battery voltage is below 3.2V, the indicator light 2 will flash orange light for 25 times (about 40 seconds), then the wireless foot control automatically shuts down.

(3) Bluetooth pairing:

Press the buttons B, C, and D simultaneously to pair Bluetooth:

① Successful pairing: Indicator light 1 will stay blue.

② Failed pairing: Indicator light 1 will blink blue.

(4) Bluetooth successfully paired:

A. If the main unit is powered on, but the wireless foot control is not:

When the wireless foot control is turned on, Bluetooth will automatically connect within 1 second, and indicator light 1 will stay blue.

B. If the main unit is powered off, but the wireless foot control is on:

After powering on the main unit, Bluetooth will automatically connect within 10

seconds, and indicator light 1 will stay blue.
C. If both the main unit and the wireless foot control are powered off:
Turning on the main unit and the wireless foot control simultaneously will result in automatic connection.
(5) Wireless foot control button operations:
Pressing the A, B, C, or D button respectively will make indicator light 2 blinks quickly. If no button is pressed, indicator light 2 will remain steady on.
(6) Indicator light display (non-charging state):
Indicator light 1 (blue) :

① Steady on: Bluetooth is connected.
② Blinking: Bluetooth is not connected.
Indicator light 2:

① Steady on: When the battery level is greater than 3.5V, the light is green. When the battery level is between 3.2V and 3.5V, the light is orange.

② Slow blinking: When the battery power is lower than 3.2V, the wireless foot control will automatically shut down after flashing orange light 25 times (about 40 seconds).
(7) Indicator light display (charging state):
When charging, connect the wireless foot control to the output of the Type C interface via a DC 5V/1A adapter. Indicator light 2 will show the following:

① Blinking green: The battery is not fully charged.
② Steady green: The battery is fully charged.
③ During charging, the wireless foot control will not shut down, and there will be no response when pressing the foot control work button.
[Note 1] The main unit has been paired with the wireless foot control before leaving the factory and can be used directly after powering on. If the pairing relationship is invalid or the foot control is replaced, please follow the above steps to re-pair.
[Note 2] Charging method: Unplug the silicone plug on the back of wireless foot control and connect the charging cable for charging.

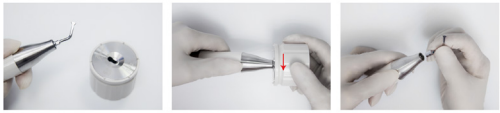
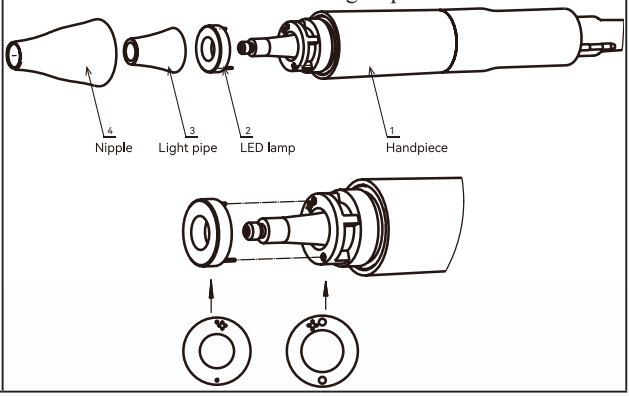
⚠Warnings :

Use only the specified battery for this device. Never use any other batteries. For devices with lithium batteries or fuel cells, incorrect replacement (e.g., reversed polarity) would result in a HAZARDOUS SITUATION (e.g., excessive heat, fire, or explosion).
Replacing the battery by inadequately trained personnel could result in such a HAZARDOUS SITUATION.

8. Cleaning, Disinfection and Sterilization

The Ultrasonic handpiece, tips, and motor handpiece are suitable for reprocessing. The steps for reprocessing are as follows:

Device	Ultrasonic handpiece	Tips
Warning	The use of strong detergent and disinfectant (alkaline pH>9 or acid pH <5) will reduce the lifespan of products. And in such cases, the manufacturer takes no responsibility. The products shall not be exposed to high temperature above 138℃. After the device is damaged or reaches the Processing limit, please cleaned and sterilized before disposal to prevent cross infection. Attention should be paid to sharp objects during disposal to prevent injury.	
Processing limit	The products have been designed for a high 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 recommended sterilization times for Ultrasonic handpiece is 100 cycles; the maximum allowable sterilization times for tip is 150 cycles.	
Initial processing	Processing principles: Effective sterilization is only possible after thorough cleaning and disinfection. As part of your responsibility for ensuring product sterility, please use only validated equipment and product-specific procedures for cleaning, disinfection, and sterilization. Please ensure that validated parameters are adhered in every cycle. Additionally, please follow the legal requirements of your country as well as the hygiene regulations of the hospital or clinic, especially regarding additional requirements for prion inactivation.	

Preparation before cleaning	Tools: Ultrasonic surgical system, torque wrench, tray, soft brush, clean and dry soft cloth. 1. Adjust the machine to the cleaning mode, step on the pedal for 3s to start the cleaning procedure; Note: Use pure water, distilled water, or deionized water during this procedure. 2. Screw the ultrasonic handpiece joint sealing sleeve into its coupling to prevent the joint from water erosion. 3. Remove the tip from the handpiece with torque wrench provided by Guilin Woodpecker Medical Instrument Co., Ltd, and then put the tip and torque wrench into a clean tray.  4. Unscrew the nipple at the front end of the Ultrasonic handpiece in a counterclockwise direction, remove the light pipe and LED lamp, and put them into the tray. 5. Use a clean soft brush to carefully brush the front thread, horn, nipple, light pipe and LED lamp until the dirt on surface is not visible. Then use a soft cloth to dry the Ultrasonic handpiece and accessories and put them into a clean tray. The cleaning agent can be pure water, distilled water or deionized water. Disassembling steps 

Cleaning	The cleaning should be performed no later than 24 hours after the operation. The cleaning can be divided into automated cleaning and manual cleaning. Automated cleaning is preferred if conditions permit. • The cleaner must be validated with CE certification in accordance with EN ISO 15883. • A flushing connector should be connected to the inner cavity of the product. • The cleaning procedure must be appropriate for the product, with a sufficient flushing period. • Do not clean the ultrasonic handpiece with ultrasound. It is recommended to use a washer-disinfector that complies with EN ISO 15883. For detailed procedures, please refer to the "Disinfection" section. Note: a) The cleaning agent does not have to be pure water; it can be distilled water, deionized water, or a multi-enzyme solution. Please ensure that the chosen cleaning agent is compatible with the products. b) During the washing stage, the water temperature should not exceed 45°C, otherwise the protein will solidify and it will be difficult to remove. c) After cleaning, the chemical residue should be less than 10 mg/L.

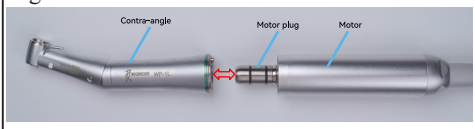
<table>
<tr><td>Disinfection</td><td colspan="2">Disinfection must be performed no later than 2 hours after the cleaning phase. Automated disinfection is preferred if conditions permit.
Automated Disinfection — Washer-Disinfector
The washer-disinfector must be validated with CE certification in accordance with EN ISO 15883.
Use the high-temperature disinfection function. Ensure that the temperature does not exceed 134°C, and that the duration of disinfection at this temperature does not exceed 20 minutes.
The disinfection cycle should comply with the disinfection cycle requirements in EN ISO 15883.
Cleaning and disinfecting steps using Washer-disinfector:
1. Carefully place the products into the disinfection basket. Fixation of products is needed only when the product is removable in the device. The products are not allowed to contact each other.
2. Connect the inner cavity of the product to the flushing connection of the washer-disinfector with a proper cleaning connector.</td></tr>
<tr><td></td><td>3. Start the program for Ultrasonic handpiece:
• 4 min pre-washing with cold water (<40°C)
• Emptying
• 5 min washing with a mild alkaline cleaner at 55°C
• Emptying
• 3 min neutralizing with warm water (>40°C)
• Emptying
• 5 min intermediate rinsing with warm water (>40°C)
• Emptying
• 5 min Disinfection at 93 °C
• Drying</td><td>3. Start the program for Tips:
• 3 min pre-cleaning with cold purified water
-emptying
• 5 min washing with Metrex Empower in deionized water (<45 °C)
• Emptying
• 1 min intermediate rinsing with cold deionized water
• Emptying
• 1 min intermediate rinsing with cold deionized water
• Emptying</td></tr>
</table>

	4. The automated cleaning processes have been validated by using 0.5% neodisher MediClean forte (Dr. Weigert) and Metrex EmPower (l:128~1:512) 5. The disinfection temperature used is 93°C for 5 minutes, with an A0 > 3000. 6. After the program is finished, remove the products from the washer-disinfector, inspect (refer to section "Inspection and Maintenance") and packaging (refer to section "Packaging"). Dry the products repeatedly if necessary (refer to section "Drying"). Note: 1) Before use, you must carefully read the operating instructions provided by the equipment manufacturer to familiarize yourself with the disinfection process and precautions. 2) With this equipment, cleaning, disinfection and drying will be carried out together. 3) Only distilled or deionized water with a small amount of microorganisms (<10 cfu/ml) can be used for all rinsing steps. (For example, pure water that is in accordance with the European Pharmacopoeia or the United States Pharmacopoeia). 4) After cleaning, the chemical residue should be less than 10mg/L. 5) The air used for drying must be filtered by HEPA. 6) Regularly repair and inspect the disinfector.
Drying	If your cleaning and disinfection process does not have an automatic drying function, ensure to dry it after cleaning and disinfection. Methods: 1. Spread a clean white paper (or white cloth) on a flat surface. Hold the products over the white paper (or cloth) and dry them using filtered dry compressed air (maximum pressure of 3 bar). When no liquid is sprayed onto the white paper (or cloth), the drying process is complete. 2. Alternatively, the products can be dried directly in a medical drying cabinet (or oven). The recommended drying temperature is 80°C to 120°C, with a duration of 15 to 40 minutes. Note: 1)The drying of product must be performed in a clean place. 2)The drying temperature should not exceed 138 °C; 3)The equipment used should be inspected and maintained regularly.

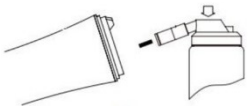
Inspection and maintenance	We only check the appearance of the products. After inspection, if there is no problem, the Ultrasonic handpiece should be immediately reassembled, installing the LED, light guide, and cone head in sequence to the Ultrasonic handpiece, and then tighten the cone head clockwise. 1.Check the products. If there is still visible stain on the products after cleaning/ disinfection, the entire cleaning/ disinfection process must be repeated. 2.Check the products. If it is obviously damaged, smashed, detached, corroded or bent, it must be scrapped and not allowed to continue to be used. 3.Check the products. If the accessories are found to be damaged, please replace it before use. And the new accessories for replacement must be cleaned, disinfected and dried. 4.If the service time (number of times) of the products reaches the specified service life (number of times), please replace it in time.
Packaging	Install the disinfected and dried products and quickly package it in a medical sterilization bag (or special holder, sterile box). Note: • The package used conforms to ISO 11607; • It can withstand high temperature of 138 °C and has sufficient steam permeability; • The packaging environment and related tools must be cleaned regularly to ensure cleanliness and prevent the introduction of contaminants; • Avoid contact with parts of different metals when packaging.

Sterilization	Use only the following steam sterilization procedure (fractional pre-vacuum procedure*) for sterilization; all other sterilization procedures are prohibited: 1. The steam sterilizer complies with EN 13060 or is certified according to EN 285 in accordance with EN ISO 17665. 2. The maximum sterilization temperature is 138°C. 3. The sterilization time is at least 4 minutes at 134°C with a pressure of 2.0 to 2.3 bars. 4. Allow a maximum sterilization time of 20 minutes at 134°C. Verification of the fundamental suitability of the products for effective steam sterilization was provided by a verified testing laboratory. **Note:** 1) Only products that have been thoroughly cleaned and disinfected are allowed to be sterilized. 2) Before using the sterilizer, read the instruction manual provided by the equipment manufacturer and follow the instructions. 3) Do not use hot air sterilization or radiation sterilization, as these may damage the product. 4) Please use the recommended sterilization procedures. Other methods such as ethylene oxide, formaldehyde, and low-temperature plasma sterilization are not recommended. The manufacturer assumes no responsibility for unapproved procedures. If you use unapproved methods, ensure compliance with applicable standards and verify their suitability and effectiveness. Fractional pre-vacuum procedure = steam sterilization with repeated pre-vacuums. This process involves performing steam sterilization through three pre-vacuums.
Storage	Store sterilized instruments in a dry, clean, dust-free environment at proper temperatures. Refer to the label and instructions for proper use and storage.

Device	Motor handpiece	Contra-angle handpiece
Warning	1) Plug in motor disinfection stopper before disinfection the motor handpiece. 2) Check if there is any residue or contamination on the main unit and foot control. 3) The use of strong detergent and disinfectant (alkaline pH>9 or acid pH <5) will reduce the lifespan of products. And in such cases, the manufacturer takes no responsibility. 4) The products may not be exposed to temperature above 137℃. 5) After the device is damaged or reaches the Processing limit, please cleaned and sterilized the Contra-angle handpiece and Motor handpiece before disposal to prevent cross infection. Attention should be paid to sharp objects during handling to prevent injury.	
Advice	Reprocessing procedures have limited effects on the products. The limitation of the number of reprocessing procedures is determined by the function and the wear of the device. However, with every renewed preparation for use, thermal and chemical stresses will result in ageing of the products. The specified maximum times of sterilization for the motor handpiece is 250 times. The specified maximum times of sterilization for the dentalcontra-angle handpiece is 600 times. If the device is damaged, it should be reprocessed before being returned to the manufacturer for repair or scrapping.	
Preparation at the Point of Use	Disconnect the dental contra-angle and the motor handpiece from the main unit. Sealing plug install on the Motor handpiece. Remove gross soiling of the instrument with cold water (<40°C) immediately after use. Don't use a fixating detergent or hot water (>40C) as this can cause the fixation of residues, which may influence the result of the reprocessing process.	
Transportation	Ensure safe storage and transport to the reprocessing area to avoid any damage and contamination to the environment.	

Preparation for Decontamination	The products must be reprocessed in a disassembled state. 1) Disconnect the motor handpiece from the main unit.  2) Hold the motor and contra-angle, and then pull the contra-angle out. 
Pre-cleaning	Immediately after the operation, plug the motor handpiece with a sterile plug, and tightly cover the end of the joint with a silicone sleeve to ensure the joint is not exposed to water. Use a clean, soft brush to carefully brush the front thread and horn. **Note:** Do not clean the dental contra-angle and the motor handpiece with ultrasound
Cleaning	For cleaning/disinfection, rinsing, and drying, distinguish between manual and automated reprocessing methods. Automated reprocessing is preferred due to better standardization potential and industrial safety. Automated Cleaning: Use a washer-disinfector that meets the ISO 15883 series requirements. Place the instrument on a tray in the machine.Connect the instrument to the washer-disinfector using a suitable adapter and start the program: • 4 minutes pre-washing with cold water (<40°C) • Emptying • 5 minutes washing with a mild alkaline cleaner at 55°C • Emptying • 3 minutes neutralizing with warm water (>40°C) • Emptying • 5 minutes intermediate rinsing with warm water (>40°C) • Emptying

	The automated cleaning processes have been validated by using 0.5% neodisher MediClean forte (Dr. Weigert). Note: According to EN ISO 17664, manual reprocessing methods are not required for these devices. If a manual method is necessary, it must be validated before use. After cleaning the motor handpiece, remove the sealing plug and check for visible contamination. If contamination is found, re-clean the handpiece without the sealing plug.
Dinsinfection	Perform automated thermal disinfection in a washer/disinfector under consideration of national requirements regarding AO values (see EN 15883). A 5-minute disinfection cycle at 93°C has been validated for the device to achieve an AO value of 3000.
Drying	Automated Drying: Dry the exterior of the instrument through the drying cycle of the washer/disinfector. If needed, additional manual drying can be performed with a lint-free towel. Use sterile compressed air to insufflate the instrument cavities.
Maintenance	Conduct functional tests according to the instructions for use. If necessary, repeat the reprocessing process until the instrument is visibly clean. Before packaging and autoclaving, ensure the dental contra-angle and motor handpiece are maintained according to the manufacturer's instructions. Visually inspect instruments for cleanliness and reassembly. Check the instrument: 1. If any visible stains remain after cleaning/disinfection, please repeat the entire cleaning/disinfection process. 2. If the instrument is damaged, smashed, detached, corroded, or bent, it must be scrapped and not reused. 3. If accessories are damaged, please replace them before use. New accessories must be cleaned, disinfected, and dried before use. 4. If the product has reached its specified service life, please replace it promptly.

Injection	The motor handpiece should not be filled with oil, as it may cause damage to the motor.	1. Align the nozzle of the cleaning lubricant with the air intake hole at the end of the contra-angle handpiece and inject oil for 1-2 seconds.  2. Stand the contra-angle handpiece up and rest it for 10 minutes to flow out the excess lubricant.
Packging	Pack the instruments in appropriate packaging material suitable for sterilization. The packaging material and system must comply with EN ISO 11607.	
Sterilization	Sterilize the instruments using a fractional pre-vacuum steam sterilization process (in accordance with EN 285/EN 13060/ EN ISO 17665) under the respective country's regulations. Minimum requirements: 5 minutes at 134°C Maximum sterilization temperature: 137°C Flash sterilization is not allowed on lumen instruments!	
Storage	Store sterilized instruments in a dry, clean, dust-free environment at proper temperatures. Refer to the label and instructions for proper use and storage.	

8.1 Note

① After sterilization, the product should be packaged in a medical sterilization bag or a clean, sealed container, and stored in a dedicated storage cabinet. The storage period should not exceed 7 days; if exceeded, the product must be reprocessed before use.

② Cleaning and disinfection of the main unit:

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

• Before each use, operate the Ultrasonic surgical system in irrigation mode for 20-30 seconds before installing the handpiece.

• After each use, operate the Ultrasonic surgical system in irrigation mode for 20-30 seconds before removing the handpiece.

• After each use, wipe the surface of the device and the tail cord of the handpiece with a soft cloth soaked in distilled or deionized water, or a clean disposable

wipe. Repeat the wiping at least 3 times.

③ Cleaning, disinfection, and sterilization of the tip holder, silicone handpiece holder, and sterilization box:

• After each use, wipe the surfaces of the tip holder, silicone handpiece holder, and sterilization box with a soft cloth soaked in distilled or deionized water, or a clean disposable wipe. Repeat the wiping at least 3 times.

• Place the tip holder and silicone handpiece holder into the sterilization box, and sterilize them using the fractional pre-vacuum steam sterilization process (according to EN 285/EN 13060/EN ISO 17665) under the respective country's regulations.

Minimum requirements: 5 minutes at 134°C

Maximum sterilization temperature: 137°C

9. Storage, maintenance, and transportation

9.1 Storage and maintenance

① Handle the device with care, keep it away from vibration sources, and store it in a shaded area.

② Do not store the device with toxic, corrosive, explosive, or combustible materials.

③ The device should be stored in an environment with relative humidity of 10% to 93%, atmospheric pressure of 70kPa to 106kPa, and a temperature of -20°C to +55°C.

④ If the device is not used for an extended period, it is recommended to connect the power and water supply for 5 minutes once a month.

⑤ Disconnect the device from the power mains when not in use.

⚠ **Danger: Regularly check the power cable for damage; if damaged, replace it with a Woodpecker spare part.**

Note:

1) The storage environment should be clean and must be disinfected regularly.

2) Products must be stored in batches, labeled, and recorded.

9.2 Transportation

① Prevent excessive shock and vibration during transportation, and handle with care.

② The device should not be transported with hazardous materials.

③ Avoid exposure to direct sunlight, rain, or snow during transportation.

10. Replacement of the fuses

⚠ **Danger: Switch off the device.**
Always turn off the device by means of the switch (Fig.3-Ref.C) and disconnect it from the power outlet before carrying out the following maintenance activities.
10.1 Insert the flat tip of a screwdriver into the recess in the fuse compartment below the power socket and use it as a lever (Fig.29-Ref.A);
10.2 Pull out the fuse compartment(Fig.29-Ref.B);
10.3 Danger: Replace the fuses, using fuses of the type indicated on the identification label on the bottom of the device;
Put the compartment back into place (Fig.29-Ref.B).

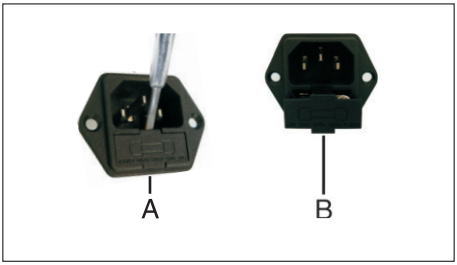


Fig.29

11. Disposal procedures and precautions

⚠ **Danger: Hospital waste**
Treat the following items as hospital waste:
-Tips, when worn or broken.
-Tube of the peristaltic pump, after 8 sterilizing cycles.
-Torque wrench for tightening tips, when worn or broken.

12. Tips

12.1 Sharp tips

The sharp edges of these tips can be used to treat bone structures efficiently and effectively. Sharp tips are used in osteotomy and osteoplasty when a fine and well-defined cut is required in the bone structure concerned. There are also tips with sharp edges for osteoplasty techniques and for removing bone fragments.

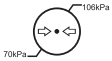
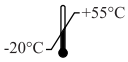
12.2 Smoothing tips

The smoothing tips have surfaces shaped in such a way that they can be used to work the bone structures with precision and in a controlled manner. Smoothing tips are used in osteotomy when it is necessary to prepare difficult and delicate structures such as those for preparing a maxillary sinus window or to complete preparation of the site of an implant.

12.3 Blunt tips

Blunt tips are used for separating the soft tissues, for example for detaching schneider's membrane or for lateralizing nerves. In periodontology, these tips are used to smoothen the root surfaces.

13. Symbols

	Follow instructions for use		Use indoor only
	Alternating current		Socker for the foot pedal
	Manufacturer	IPX1	Drip-proof
	Can be autoclaved		Date of manufacture
	Protective earthing		1.6A, 250V Pwtective tube
	Type B applied part	SN	Serial number
CE 0197	CE marked product		Atmospheric pressure for storage
	Temperature limitation for storage		Humidity limitation for storage
100–240V~	Input voltage	IPX6	Strong water spraying experiment
	Appliance compliance WEEE directive		
EC REP	Authorised Representative in the EUROPEAN COMMUNITY		
	On (Power)		Off (Power)
	There is a waterway in the component.		Water flow direction



Position of the knob when the peristaltic pump is on and the direction in which the knob can be rotated in the current state



Position of the knob when the peristaltic pump is off and the direction in which the knob can be rotated in the current state



Fragile items, handle with care



Keep Dry

LOT Batch code



Recyclable material

UDI Unique Device Identification

MD Medical device

14. Technical data

Main unit model	Surgic Star SE\Surgic Star
Power input	100V-240V~ 50Hz/60Hz
Input Power	180VA
Main unit size	267mm ×284mm ×136mm
Ultrasonic handpiece	HB-2 LED
Foot control	MF6/PF-3 Plus either
Tip	Subject to packing list
Fuses	2×T1.6AL 250V
Working frequency	24kHz~36kHz
Water flow	30~120mL/min
Motor handpiece	SPM60L
No-Load Speed (r/min)	300-42000
Cooling air flow	Maximum air flow is no more than 40L/min
Contra-angle gear ratio	Rotation speed output (r/min)
1:1	1000-42000
1:3	3000~126000
1:4.2	4200~176400
1:5	5000-210000
16:1	20~2625
20:1	15~2100
27:1	10~1537

14.1 According to EN60529: IPX1 (device), IPX6 (foot control)
14.2 Software version: V1
14.3 Device for intermittent operation: 60s ON, 10s OFF

14.4 Applied parts: Tips and Contra-angle handpiece
14.5 Protection systems and tripping time of the APC:
No handpiece connected: 10ms
Cord interrupted: 10ms
Tips broken or not correctly tightened: <500ms
Protection by discharge to earth: 10ms
14.6 Operation environment:
a) Environment temperature: +5°C~+40°C
b) Relative humidity: 30%~75%
c) Atmosphere pressure: 70kPa~106kPa
d) Temperature in the water inlet of water-cooling equipment is not higher than 25°C.
14.7 Delivery and storage environment: This 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℃.
14.8 Ultrasonic handpiece and cord: Sterilization cycles of less than 100 are strongly recommended.
14.9 Pump tube: Sterilization cycles of less than 8 are strongly recommended.
14.10 Type of protection against electric shock: Class I equipment.
14.11Degree of protection against electric shock: Type B applied part.
14.12 Adapter of wireless foot control
Model: ADS-6AM-06N 05050EPCN
Input: 100-240V~, 50/60Hz, 0.4A max
Output: 5V⎓1A
Note: If other adapters are used, IEC 60601-1 approved adapters should be selected.
14.13 Rechargeable lithium battery of wireless foot control
Model: 18500
Nominal voltage: 3.7V
Capacity: 2000mAh

15. After service

We provide a two-year warranty for free repairs on this device, as outlined in the warranty card. Repairs must be performed by our certified technicians to ensure safety and effectiveness.
Please note that we are not liable for any irreversible damage resulting from repairs conducted by unauthorized personnel.
Woodpecker states that we can supply circuit diagrams, component lists, drawings, calibration details, or other relevant information to assist designated maintenance personnel in repairing Surgic Star SE/Surgic Star components.
Refer to the product packaging label for the production date. The product's service life is 10 years.

16. Environmental protection

This product is a medical device and is not allowed to be arbitrarily discarded. Comply with your national regulations, guidelines and requirements for the disposal of end-of-life device.
Please remove the power cord and internal circuit board and discard them as electronic product waste according to local regulations.
Prior to disassembly and disposal, the handpiece, handpiece tail and the surface of main unit must not be contaminated and must have been completely reprocessed (Cleaning/Disinfection/Sterilization) according to Instructions for Use. Discard them as universal product waste according to local regulations.

17. Manufacturer's right

We reserve the right to change the design of the device, the technique, fittings, the instruction manual and the content of the original packing list at any time without prior notice. If there is any discrepancy between the blueprint and the actual product, the actual product shall prevail.

18. Guarantee

18.1 Before being released to the market, all WOODPECKER products undergo a thorough final check to ensure that they are in proper working order.

18.2 WOODPECKER guarantees that its products, purchased new from a WOODPECKER dealer or importer, are free from manufacturing or material defects for:

-TWO YEARS from the date of purchase for the device;
-ONE YEAR from the date of purchase for the handpiece with its cord.

18.3 Throughout the warranty period, WOODPECKER undertakes to repair (or, at their sole discretion, to replace) free of charge any parts that, in their opinion, are faulty. Complete replacement of WOODPECKER products is excluded from this warranty.

18.4 Woodpecker accepts no liability for direct or incidental damage or personal injury in the following cases:

18.4.1 If the device is used for purposes other than that for which it is intended;
18.4.2 If the device is not used in accordance with all the instructions and requirements described in this manual;
18.4.3 If the wiring system in the room where the device is used does not comply with the applicable standards and appropriate requirements;

18.4.4 If any assembly operations, extensions, settings, alterations or repairs have been carried out by personnel not authorized by Woodpecker;
18.4.5 If the environmental conditions in which the device is kept and stored do not comply with the requirements indicated in the chapter on technical specifications.

18.5 The warranty does not cover accidental damages due to transport, improper use, negligence, or connection to power supplies other than those specified. Damage to signaling lamps, the handpiece, and all accessories is also excluded from the warranty.

The warranty will no longer apply if the device has been tampered with or repaired by unauthorized personnel.

18.6 Warning:

The warranty is valid only if the warranty slip enclosed with the product has been completed in full and returned to us or, if appropriate, to your WOODPECKER dealer or importer within 20 days from the date of purchase, as proven by the consignment note/invoice issued by the dealer/importer.
In order to benefit from the warranty service, the customer must return the device to the WOODPECKER dealer/importer from which it was purchased for repair, at his/her own expense.

18.7 The device should be returned properly packed (preferably in its original packing material).

18.8 The device must be accompanied by all accessories and the following information:

18.8.1 Owner's details, including his telephone number;
18.8.2 Details of the dealer/importer;
18.8.3 A photocopy of the consignment note/purchase invoice for the device issued to the owner, indicating the name and serial number of the device in addition to the date;
18.8.4 A description of the problem.

18.9 Transport and any damages caused during transport are not covered by the warranty.

In the event of failure due to accidents or improper use, or if the warranty has expired, repairs to WOODPECKER products will be charged on the basis of the actual cost of the materials and labour required for such repairs.

19. Statement

This is to certify that all the functions of the device have been tested rigidly. All

the functions run normally. In special conditions, abnormal phenomena may happen due to the unavoidable interference.
In the device, power network or static interference may cause the display screen to show white spots. This occurrence does not affect the operation of the device's normal functions. If this happens, stop the deivce and press the upper right button on the display panel to change the screen display, and then return. Thus the device can display normally. Alternatively, turn off the power supply and restart the device to restore normal display.
The manufacturer reserves all rights to modify the product without prior notice. Images are for reference only. Final interpretation rights belong to GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.
The industrial design, internal structure, and other features of this product are protected by several patents held by WOODPECKER. Any reproduction or counterfeit of this product will be subject to legal responsibilities.

20. Declaration of conformity- EMC

Declaration - electromagnetic emissions

Guidance and manufacturer's declaration - electromagnetic emissions		
The Ultrasonic Surgical System is intended for use in the electromagnetic environment specified below. The customer or the user of the Ultrasonic Surgical System should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The Ultrasonic Surgical System use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR11	Class B	The Ultrasonic Surgical System is suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Guidance & Declaration — electromagnetic immunity

Guidance & Declaration — electromagnetic immunity

The Ultrasonic Surgical System is intended for use in the electromagnetic environment specified below. The customer or the user of the Ultrasonic Surgical System should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±1 5 kV air	±8 kV contact +2 kV +4 kV ±8 kV, ±1 5 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	±2kV for power supply lines ±1 kV for signal input/ output lines	±2kV for power supply lines ±1kV for signal input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±0.5 kV, ±1 kV line to line ±0.5 kV, ±1 kV, ±2 kV line to ground	±0.5 kV, ±1 kV line to line ±0.5 kV, ±1 kV, ±2 kV line to ground	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 25/30 cycles <5% U_T (>95 % dip in U_T) for 5/6 sec	<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 25/30 cycles <5% U_T (>95 % dip in U_T) for 5/6 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Ultrasonic Surgical System requires continued operation during power mains interruptions, it is recommended that the Ultrasonic Surgical System be powered from an uninterruptible power supply or a battery.

Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance & Declaration - electromagnetic immunity concerning Conducted RF & Radiated RF

Guidance & Declaration - Electromagnetic immunity			
The Ultrasonic Surgical System are intended for use in the electromagnetic environment specified below. The customer or the user of the Ultrasonic Surgical System should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz 6 Vrms in ISM bands	3 Vrms 150 kHz to 80 MHz 6 Vrms in ISM bands & amateur radio bands	Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30cm (12 inches) to any part of the Ultrasonic Surgical System, including cables specified by the manufacturer. Otherwise, degradation of the performance of this device could occur. If higher IMMUNITY TEST LEVELS than those specified in Table 9 are used, the minimum separation distance may be lowered. Lower minimum separation distances shall be calculated using the following equation: $d=(6xP^{1/2})\times/E$ Where P is the maximum power in "W", d is the minimum separation distance in "m", and E is the IMMUNITYTESTLEVEL in "V/m".
Radiated RF IEC 61000-4-3	10V/m 80 MHz to 2.7 GHz 385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to table 9 of IEC 60601-1-2 : 2014 + A1 : 2020)	10V/m 80 MHz to 2.7 GHz 385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to table 9 of IEC 60601-1-2 : 2014 + A1 : 2020)	

⚠ Warning:

① Use of this device adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this device and the other equipment should be monitored to ensure they are operating normally.

② Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this device could result in increased electromagnetic emissions or decreased electromagnetic immunity of this device and result in improper operation.

③ The performance of the Surgic Star SE/Surgic Star may be reduced by electromagnetic interference (EMI) from other electrical equipment used in the same room or adjacent rooms, or from portable and mobile RF communication devices such as cell phones and walkie-talkies, or from nearby radio, television, HF surgical equipment, or microwave transmission devices. If EMI affects the normal operation of the Surgic Star SE/Surgic Star, it may be necessary to relocate the Surgic Star SE/Surgic Star or implement appropriate electromagnetic interference suppression measures.

④ Surgic Star\Surgic Star SE has special precautions for EMC and must be installed and used according to the information provided in the manual.

⑤ The use of power cables, cable of the foot control, cable of the motor handpiece, and cable of the ultrasonic handpiece not specified for the Surgic Star\ Surgic Star SE may increase the amount of radiation in the Ultrasonic Surgical System or reduce its resistance to interference. The following table provides detailed information. Please use our original accessories.

No.	Name of the electrical cable	Length of the electrical cable	Whether the cable is shielded
1	Power cable	1.5m	NO
2	Cable of the foot control	2.8m	NO
3	Cable of the motor handpiece	1.8 m	NO
4	Cable of the ultrasonic handpiece	1.95m	NO

Wireless foot control receiver parameter:
Modulation system: GFSK
Frequency range: 2400 - 2483.5MHz
Frequency tolerance: ≤20ppm
Transmitting power: ≤20dBm
Occupied bandwidth: ≤2Mhz
Stray emission limits: ≤30dBm

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
Sales Dept.: +86-773-5873196/2350599
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E-mail: woodpecker4@glwoodpecker.com
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EC REP MedNet EC-REP C IIb GmbH
Borkstrasse 10 · 48163 Muenster · Germany

Cut along the dashed line

Warranty Card

Name of Customer		(Ⅰ) For Distributor
Address Details		
Postal Code		
Tel		
Model		
Unit No.		
Handpiece 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		
Unit No.		
Handpiece No.		
Purchase Date		
Contact Person		

Date	Maintenance Record	Repairer

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Seal

Warranty Instruction

Ⅰ Period validity:

We offer two years free repair for the whole unit(except for the handpiece and the easily-consumed parts) from the date of purchase.

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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Harm of fake products

and 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.

