



BA ULTICLEAN UC600L Dental Scaler and Air Polisher

INSTRUCTIONS FOR USE



BA Code: BA260100

REF UC600L



Please read this IFU carefully before using the device for the first time

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Foreword

Thank you for purchasing BA ULTICLEAN UC600L Dental Scaler and Air Polisher distributed by B.A. International Ltd. BA International is a leading brand of dental equipment and handpieces. To find out more about our product range, please visit www.bainternational.com. To guarantee correct and safe operation, please read this Instruction Manual carefully before use.

1. Introduction

The ULTICLEAN UC600L Dental Scaler and Air Polisher is an integrated system that combines the functions of an ultrasonic scaler and an air polishing unit. Its key features are:

- 1) Automatic mode switching based on the selected handpiece.
- 2) A touch-screen LCD display with intuitive function selection and real-time status indicators.
- 3) A titanium alloy tip with an elliptical vibration trajectory and low amplitude.
- 4) An automatic frequency tracking system for optimal working frequency detection.
- 5) Adjustable water flow and power, and automatic dual-waterway flushing.
- 6) Special pharmaceutical products such as:
 - hydrogen peroxide (3% concentration)
 - sodium hypochlorite (0.2% concentration)
 - chlorhexidine (5% concentration) can be used in automatic water supply mode to improve clinical effect.
- 7) Detachable air polishing handpiece for easy assembly, cleaning, and maintenance.
- 8) Autoclavable handpieces (134°C, 0.22 MPa) with easy attachment and removal.
- 9) A wireless multi-function foot pedal for streamlined control.
- 10) Anti-slip grooves on ultrasonic and air polishing handpiece connectors for secure grip and handling.
- 11) A transparent funnel-shaped powder container with 360° rotation and built-in lighting for real-time power level monitoring.
- 12) Two powder containers: subgingival/supragingival containers, each featuring a clear powder level scale.
- 13) A pre-bendable subgingival nozzle with four-hole design: three powder outlets and one water outlet.

1.1 Product Model

ULTICLEAN UC600L

1.2 Product Configuration



Front of main unit



Powder tank white (Supragingival)
Powder tank blue (Subgingival)



1400/600-mL water reservoir



Handpiece set



Power cord



Wireless multi-function pedal



Bottom of main unit



Round foot switch



Air source PU hose



Periodontal disinfection box



Air polishing disinfection box



Connectors

Component List:

1. Main Functional Components

- 1 x Wireless foot pedal BA260101
- 1 x Foot pedal metal bracket BA150549
- 2 x Ultrasonic handpiece BAC5L-BA150160
- 2 x Torque wrench BA150166
- 1 x Air polishing handpiece AP-1 BAC5P-BA150150
- 1 x Air polishing handpiece AP-2 BAC5B-BA150155
- Wired foot pedal BA260103

2. Power Supplies and Cables

- 1 x Power supply cable UK BA300102
- 1 x Power supply cable EU BA300103
- 1 x Power supply cable CAN BA300105
- 1 x Power supply cable AUS BA300104
- Power supply for wireless foot pedal USBC connection (EU, UK, CAN, AUS) BAT030

3. Consumables and Common Spare Parts

- 1 x Powder tank white (Supra) BA260104
- 1 x Powder tank blue (Sub) BA260105
- 1 x Water Bottle 1400ml (complete) BA150514
- 1 x Water Bottle 600ml (complete) BA150515
- 2 x Scaler cassettes BA150508
- 1 x Air Polisher cassette BA150509
- 1 x Long Cleaning Needle BA150521
- 1 x Short Cleaning Needle BA150522
- 1 x Nozzle wrench silver BA150175
- 2 x Endo tip wrench metal BACS1250
- 2 x LED light BA150524
- 1 x Nozzle tips subgingival polishing BA150170
- 2 x Red pip small BA260111
- Powder container filling aid BA260107
- 1 x Air filter BA260106
- 1 x Water mains filter BA150518

4. O-Rings and Seals

- 4 x Air polishing nozzle O'ring BA150666
- 2 x Powder cap seal (large, white) BA260109
- 2 x Powder chamber O-ring (medium, black) BA260110
- 4 x O'ring - Air polisher lead BA150541

8 x O'ring – Water tank connector BA150654
2 x Red seal pip – Air polishing hose, front end (RED) BA150667
2 x O-ring air polishing cable, (front end, medium, white) BA150651
2 x O-ring Air polishing cable large (front end, black) BA150650
4 x Connection O-ring for Scaler lead BA150548
1 x Internal air filter BA260106

5. Tubing and Connectors

1 x Black braided air hose BA150511
1 x PU tube (Clear water pipe) BA150503
1 x Metal female connector to the water line BA260108
1 x Female connector metal to the airline connector external male BA150539
1 x T-branch Pipe 8*8*6 (Union T) BA150501
2 x Female connector BA150520
1 x Male connector metal BA150519

6. Tips

2 x Tip P33 – BAC33E-BA150180
2 x Tip P50L – BAC50LE-BA150182
2 x Tip P50R – BAC50RE-BA150181
2 x Tip P56 BAC56E-BA150185
2 x Tip P59 BAC59E-BA150184
1 x Tip P94 BAC94E-BA150186
1 x Tip P95 BAC95E-BA150187
2 x Tip E60 BAC60E-BA150195

7. Documentation

Instruction manual and QR translation card

1.3 Intended Use

1.3.1 Ultrasound system

① Scaling

Removal of supragingival calculus

Removal of stains

② Endo

Preparation, cleaning and irrigation of root canals

Retrograde preparation of root canals

Condensing gutta-percha

Removal of crown, bridges and restorations

③ Restorative

Cavity preparation

Luting inlays and onlays

Condensing of amalgams

④ Perio

Scaling and root planning

Periodontal treatments

1.3.2 Air polishing system

Remove dental plaque

Surface preparation before bonding/cementation of inlays, onlays, crowns and veneers

Perform the tooth surface preparation before placing the composite restoration.

Cleaning before sticking orthodontic brackets
Effectively remove plaque and tartar for orthodontic patients
Cleaning the implant fixture before loading
Stain removal for shade determination
Remove plaque before fluoride treatment
Remove plaque and tartar before whitening procedure

1.4 Intended user

Dental professionals.

1.5 Intended patient

Intended for use on patients requiring hygiene dental treatment.

1.6 Contraindications

1.6.1 Contraindications for treatment:

1. This product must not be used on patients with hemophilia, heart pacemaker or respiratory diseases such as asthma and chronic bronchitis.
2. The doctors with a heart pacemaker must not use this equipment.
3. Use with caution on patients with heart disease, pregnant woman and children.

1.6.2 Contradictions for air polishing powder – please see manufacturer's recommendation for applicable use.

1.7 Equipment Safety Classification

1.7.1 Mode of operation: Continuous operation

1.7.2 Type of protection against electric shock: Class I

1.7.3 Degree of protection against electric shock: Tip and nozzle classified as type B applied parts

1.7.4 Degree of protection against harmful ingress of water: Ordinary equipment (IPX0); foot switch is drip-proof (IPX1)

1.7.5 Degree of safety for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide: Equipment is not suitable for use in such conditions

1.7.6 Sterilisation and disinfection methods recommended by the manufacturer: Refer to Chapter 5 Cleaning, Disinfection and Sterilisation.

1.8 Technical Specifications

1.8.1 Main unit mains power supply input: 100–240 V, 50 /60Hz, 3 A–1.5A

1.8.2 Wireless multi-function pedal power adapter (optional):

Input: 100–240 V, 50/60 Hz, 0.2 A

Output: 5V $\equiv$ 1A

1.8.3 Rechargeable lithium battery: 3.6 V/750 mAh

Note: If other adapters are used, IEC 60601–1 approved adapters should be selected

1.8.4 Maximum deviation of the main vibration output at the tip: 90 μ m, deviation: $\pm$ 50%

1.8.5 Output tip vibration frequency: 30 $\pm$ 5 kHz

1.8.6 Maximum output force (half-deviation): 10 N, deviation: $\pm$ 50%

1.8.7 Tip output power: 3W–20W

1.8.8 Main unit fuse: T3.15AH 250V

1.8.9 Water inlet pressure: 1bar to 5 bar (0.1 MPa–0.5 MPa)

- 1.8.10 Intake pressure: 5.5 bar–7.5 bar (0.55 MPa–0.75 MPa)
- 1.8.11 Main unit weight: 3.36 kg
- 1.8.12 Main unit size: Length × Width × Height 320 mm × 230 mm × 160 mm
- 1.8.13 Software version: V1

1.9 Working Environment

- 1.9.1 Ambient temperature: +5°C to +40°C
- 1.9.2 Relative humidity: 30% – 80%
- 1.9.3 Atmospheric pressure: 70 kPa – 106 kPa
- 1.9.4 Cooling water temp.: +5°C to +25°C

1.10 Intended Environment

Environment of use: This product is intended exclusively for professional use in healthcare settings, such as hospital dental departments and dental clinics. It is not designed for household or personal use. For additional restrictions on the environment of use, please refer to "1.10 Working Environment".

Note: The product is not suitable for use in operating rooms equipped with, for example, MRI or HF surgical equipment.

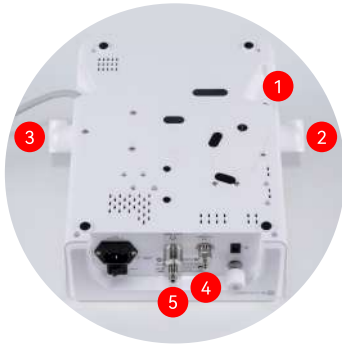
1.11 Software Release

Dental Scaler and Air Polisher software release version: V1.

2. Installation

2.1 Installation of Main Unit

- 1) Unpack the product and verify that the device is in good condition and that all accessories listed in the product configuration are included.
- 2) Remove the external air hose and connect it to the air source connector located at the bottom of the main unit. To connect an external water source, attach the water hose to the water source connector on the back of the main unit. Always ensure that you connect the external water line via treatment center or a filtered water system, and not directly to mains water supply.
- 3) Ensure that the power switch on the main unit is set to the OFF position. Next, plug the power cord into a 220V ~ mains power outlet. Finally, connect the other end of the power cord to the power socket on the back of the main unit.
- 4) If a wired foot switch is used, insert the round foot switch plug into the pedal socket on the back of the main unit.
- 5) The usage and installation diagrams of the device connectors are as follows:



1. Air polishing cord connector
2. Air polishing handpiece holder (with magnetic induction)
3. Ultrasonic handpiece holder (with magnetic induction)
4. Air source connector (including a filter, subject to the actual product)
5. External water source connector (including a filter, subject to the actual product)



1. Power cord socket (with fuse)
2. Wired round foot switch connector
3. Round foot switch



1. Power cord socket (with fuse)
2. Water flow adjustment knob for external water supply mode
3. On/off power switch for main unit



1. Installed 600-mL water reservoir
2. Installed luminous powder container
3. Installed ultrasonic handpiece
4. Installed air polishing handpiece
5. Ultrasonic device power cord
6. Air polishing device power cord

Warning

- To avoid the risk of electric shock, this device must be connected to a power supply network with grounding protection.
- Place the device where the power plug can be easily disconnected from the mains power supply during operation.
- Do not modify this equipment without the authorization from the manufacturer.
- During certain diagnostic or treatment procedures, interference between devices may cause the tip to stop vibrating, potentially leading to delays in treatment.

2.2 Ultrasonic Handpiece Assembly and Disassembly Diagram



2.2.1 Ultrasonic handpiece tip disassembly and assembly diagram



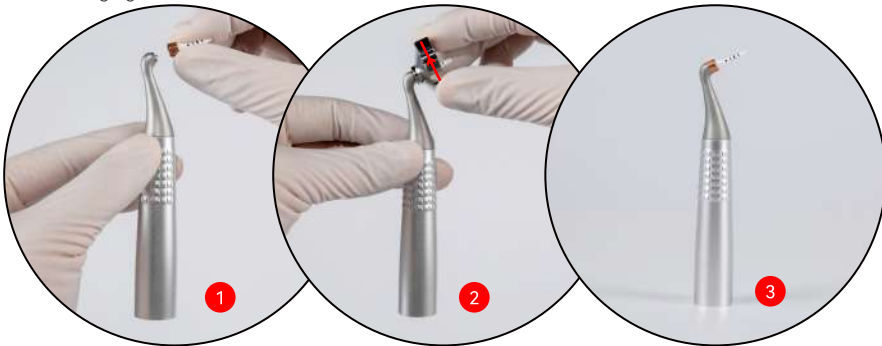
2.3 Air Polishing Handpiece Assembly and Disassembly Diagram



1. Nozzle
2. Air polishing handpiece

2.3.1 Subgingival air polishing handpiece disassembly and assembly diagram

1. Prepare the subgingival nozzle.
2. Apply force using a subgingival nozzle wrench.
3. The subgingival nozzle is now installed.

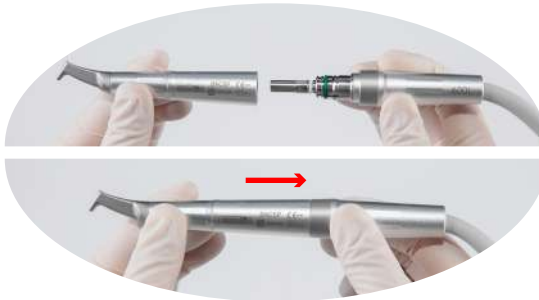


2.4 Handpiece connection



Ultrasonic handpiece connection steps

1. Ensure there is no foreign matter on the handpiece and cord
2. Connect the ultrasonic handpiece to the cord
3. Place it into the left holder of the main unit



Air polishing handpiece connection steps

1. Ensure there is no foreign matter on the handpiece and cord
2. Connect the air polishing handpiece to the cord
3. Place it into the right holder of the main unit



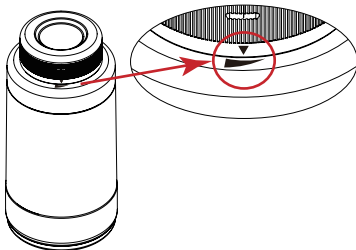
Place the installed handpieces into corresponding holders:

1. Ultrasonic handpiece holder
2. Air polishing handpiece holder

2.5 Use of Powder Container

(1) Remove the powder container and unscrew its lid. Use an air gun to blow away any remaining powder from the threads of the powder container and lid. Hold the dental powder bottle, shake it 3 – 5 times, then carefully pour the powder into the powder container. Ensure the powder type matches the label on the powder container. The powder level must be maintained between the Maximum and Minimum lines according to usage requirements; otherwise, the air polishing performance may be compromised.

(2) After filling the powder, ensure that the threads of the powder container and its lid are free of any residue or foreign matter; if necessary, clean them before proceeding. Then screw the lid on fully to guarantee a tight seal.



⚠ Align the '▼' mark on the cover within the '▲' range before use (see figure: '▼'). If not properly aligned, powder may leak from the pressure relief hole on the cover.

(3) When installing the powder container, ensure that no powder residue or anything else on the surface of the powder container metal seat and of the main unit powder container base (if any, clean before proceeding). Failure to do so may prevent proper installation and compromise the seal.

(4) Before removing the powder container from the device, press the "Clean" button to

release the pressure. At the end of the day's treatments, when the device will not be used again, clean the inside of the powder container with an air gun (it is recommended to store the unused powder in a dry, sealed container) to prevent moisture absorption and clumping, which can cause clogging.

Warning

- Check that the o-ring of the powder container lid is assembled properly with no exposure or damage before tightening the powder container lid, otherwise, the seal may be compromised.
- When tightening the powder container lid, align the thread carefully and do not apply additional force if you encounter jamming or excessive resistance, as this may damage the container.
- When replacing two o-rings of the metal seat of the powder container, ensure that the o-rings are not bent or twisted and can be seated smoothly in its groove; improper installation may impair sealing or cause the container to pop out.
- Clean the external surface of the powder container with a wet wipe or alcohol; do not use any corrosive disinfectant. Do not immerse the powder container in liquids such as water or medicinal solutions.

[Tip] Operators should wear appropriate personal protective equipment (e.g., safety goggles, face shield) during operation.

2.6 Water reservoir Installation

Remove the water reservoir, fill it with purified water (or distilled water), and then position the water reservoir into the main unit. To facilitate easy insertion and removal, please apply a small amount of Vaseline to the o-ring at the bottom of the reservoir to lubricate it.



1. Remove the dustproof plug



2. Remove/install the water reservoir

2.7 Function Diagram and Connection Method of Wireless Multi-function Pedal



1. Waterless mode
2. Boost Mode
3. Cleaning mode
4. Normal Mode
5. Signal indicator light
6. Battery indicator



7. Pairing button



8. Charging port

9. Wireless multi-functional pedal charger

2.7.1 Tap the "Setting" button on the screen to enter the settings menu

2.7.2 Press and hold the pairing button on the bottom of the wireless multi-function pedal (for approx. 5 seconds).

2.7.3 When the "Pair Foot Pedal" button on the screen is pressed, the main unit will automatically begin pairing with the wireless multi-function pedal. At this time, the pairing button on the wireless multi-function pedal can be released.

2.7.4 When the pairing is successful, the main unit screen will automatically return to the operation interface, the screen will display the wireless multi-function pedal battery icon, and the wireless multi-function pedal signal indicator will light up (blue).

2.7.5 If the pairing fails, a "Pairing Failed" message will appear on the screen. Press and hold the pairing button on the wireless multi-function pedal again and tap the "Continue" button to retry.

2.7.6 If the wireless multi-function pedal is not used for 10 minutes, it will automatically shut down and the battery icon on the screen will disappear. To reactivate the pedal, press and hold the Normal Mode button for 3 seconds; the pedal will power on and automatically reconnect to the main unit.

[Tip 1] The wireless pedal supplied with your device is already paired and ready to use. If the pairing is lost or the pedal is replaced, please follow the steps above to re-pair the device.

[Tip 2] The wireless multi-function pedal has two indicator lights: powder indicator (green) and connection indicator (blue). A steady green light indicates sufficient battery level. A steady orange light indicates low battery. A slowly flashing orange light indicates that the pedal is about to shut down automatically. When the pedal is

pressed, the power indicator will flash rapidly. A steady blue light indicates the pedal is successfully paired and connected to the main unit. A flashing blue light indicates the pedal is not connected.

[Tip 3] Once the wireless multi-function pedal is successfully connected to the main unit, the pedal battery level will be displayed on the main unit. If the pedal is not connected, the battery icon will not appear on the main unit screen.

[Tip 4] Note: The wireless foot pedal connects via Bluetooth with a receiving frequency of 2.4 GHz. Preferred frequency/band (where applicable): 2400–2480 MHz. Receiver bandwidth: 1 MHz. Transmitting frequency/band: 2400–2480 MHz. Modulation: Type + frequency characteristic GFSK. Effective isotropic radiated power (EIRP): 4 dBm.

2.8 Description of Wireless Multi-Function Pedal Mode

2.8.1 The wireless multi-function pedal is illustrated in the figure, and the functions of each button are as follows:

Working mode	Function	
	Ultrasonic system	Air polishing system
Normal mode	Tip vibration + water spray	Air jet, powder + water spray
Waterless mode	Tip vibration	Only air jet
Boost mode	Power increased by 3 levels	Power increased by 3 levels
Cleaning mode	Water spray only	Air jet + Water spray

Note: In the boost mode, the power/air pressure is increased by 3 levels above the originally set level; ULTICLEAN UC600L has a maximum level of 12. Once the Boost mode button is released, the device will automatically return to the previously set level.

2.8.2 Charge

When a low battery warning appears on the screen or the power indicator on the wireless multi-function pedal flashes, please charge the foot pedal promptly. During charging, a steady orange light indicates that charging is in progress, and a steady green light indicates that the battery is fully charged.

Input: 220V, 50Hz, 0.4A Max

Output: 5 V, DC, 1 A

Do not operate the wireless multi-function pedal during charging.

A steady green light indicates that the battery is fully charged, and the power adapter shall be disconnected promptly.

Avoid overcharge and overdischarge.

Warning

If the battery in the wireless pedal cannot be charged, it must be replaced. Battery replacement should be carried out by service personnel. If there is any need for maintenance or repairs, please send the instrument to B.A. International or an approved B.A. International dealer.

2.9 Touch Panel Diagram



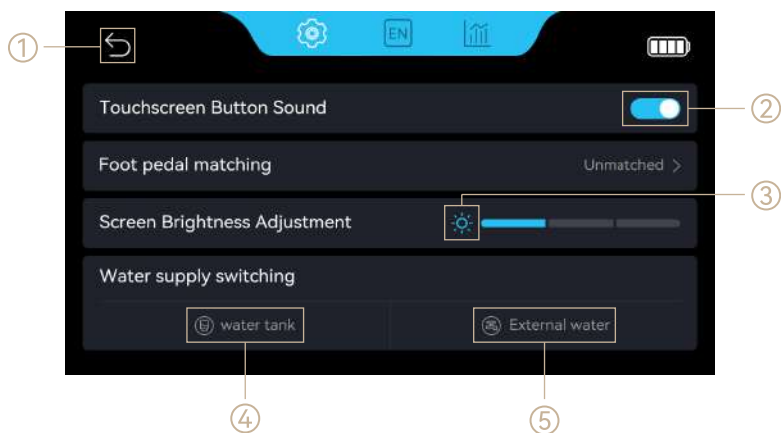
Ultrasonic interface

① Ultrasonic scaling; ② Water flow; ③ Power; ④ Temperature; ⑤ Level decreased; ⑥ Level increased; ⑦ Battery of wireless multi-function pedal; ⑧ Cleaning mode; ⑨ Setting; ⑩ Lock screen.



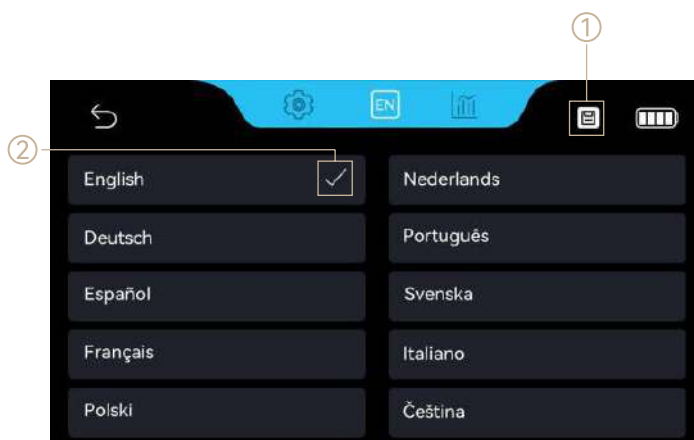
Air polishing interface

① Air polishing scaling.



Setting interface

① Return; ② Key tone switch; ③ Brightness; ④ Internal water supply mode; ⑤ External water supply mode.



Setting interface

① Save; ② Wireless multi-function pedal connected successfully.

2.9.1 Explanation of symbols on the touch panel



Previous page



Next page



Wireless multi-function pedal connection failed

Note: Icons in white mean unselected, and in blue mean selected.

3. Device Use

3.1 Scaling Mode Selection

This unit offers two preset scaling modes: ultrasonic scaling mode and air polishing scaling mode. When the ultrasonic handpiece is picked up, the main unit automatically switches to ultrasonic scaling mode and locks the air polishing function. Conversely, when the air polishing handpiece is picked up, the main unit switches to air polishing mode and locks the ultrasonic function.

When both handpieces are placed in their holders, the main unit enters a locked state and the foot pedal is deactivated. If both handpieces are picked up simultaneously, the main unit will lock and display the alarm "Do not pick up both handpieces". In this case, pressing the "Normal Mode" button on the wireless multi-function pedal will have no effect.

To prevent accidental operation, the screen can be locked. Briefly press the Lock Button to lock the interface. When locked, all touch functions will be disabled. To unlock, press and hold the Lock Button for 3 seconds. Successful unlocking will be confirmed by a buzzer sound.

3.2 Ultrasonic System

3.2.1 Ultrasonic scaling mode and use

① Turn on the power switch on the main unit and pick up the ultrasonic handpiece. The screen will automatically switch to the ultrasonic scaling interface. Select one of the working modes: "G", "P", or "E". The "G" mode includes two preset options: Efficient Scaling (7-12) and Comfortable Scaling (1-6). The "P" mode includes: Periodontal Treatment and Implant Maintenance. The "E" mode includes: Endodontic Treatment and Root Canal Irrigation.

② Assess the patient's oral condition and pre-set the power level, water temperature, and water flow accordingly. It is recommended to start at power level 3 and water flow level 5. Adjust the water flow and power in real time during the procedure based on the patient's oral sensitivity and overall response.

③ Select an appropriate tip based on the clinical need and securely tighten it onto the handpiece with a torque wrench.

④ Press the wireless foot pedal or the round foot pedal activates tip vibration and starts water spray. (Note: When starting the device for the first time, water spray may be delayed briefly). Releasing the wireless multi-function pedal will stop the vibration and water flow. During operation, the tip temperature will not exceed 43°C if water is supplied. If the water supply stops, immediately cease operation to prevent overheating. Running the tip dry causes rapid temperature rise. At maximum power, the tip can reach 28.7°C within 1 second of dry operation, which matches the operator's typical reaction time. Therefore, a continuous and adequate water supply must be ensured throughout the procedure.

⑤ It is generally recommended to hold the handpiece in a pen-like grip

⑥ During normal operation, the device vibrates at an extremely high frequency. When tip vibration and water atomization are properly maintained, the side of the tip should gently contact the tooth surface and be moved back and forth at a steady pace. This technique effectively removes dental calculus while preventing significant heat buildup at the tip. Avoid applying excessive force or holding the tip on a single area for too long.

⑦ During clinical scaling, keep the side of the tip in contact with the tooth surface at a zero-degree angle. Do not apply pressure; allow the tip to vibrate freely.

⑧ After scaling, run the device with water for 30 seconds to flush the handpiece and tip. Then proceed with cleaning, disinfection, and sterilisation.

⑨ Tip Wear Indicator: Place the tip on the reference diagram on the cover of the periodontal disinfection box to assess wear. If the tip is worn down to the short line, the output power

may be decreased. If the tip is worn down to the long line, continued use is not advised, and it should be replaced.

[Tip 1] When the water flow is set to level 0, the device enters waterless mode (i.e., no water output), which is intended for specific operating environments that do not require water. Do not operate in waterless mode for more than 10 seconds.

[Tip 2] Before each procedure, confirm that water mist is being emitted from the tip. If no mist is observed, stop operation immediately. It is recommended to preset the water flow level to the manufacturer's specified value before powering on. During prolonged continuous operation, the tip temperature may rise up to 48°C. Discontinue use if a significant temperature rise is noticed.

[Tip 3] Long-term contact between the tip and the patient is only safe when cooling water is properly sprayed. It is recommended that continuous contact with a single area does not exceed 2 minutes. Since physiological responses vary by age (children, adults, and elderly) and gingival conditions, adjust the operating force and power level in real-time based on the patient's response, and stop treatment if necessary. Patients under medication (e.g., local anaesthesia) may have reduced sensitivity to pain and heat; therefore, use shorter contact times and gentler force accordingly.

3.2.2 Root canal treatment modes and uses

(1) Tighten the root canal tip onto the ultrasonic handpiece using the root canal wrench.

(2) Press the "E" button on the screen to switch to the Root Canal Treatment mode. In this mode, two preset parameter options are available: "Root Canal Treatment" and "Root Canal Irrigation".

(3) During clinical scaling, avoid applying excessive pressure with the root canal tip inside the root canal.

(4) The foot pedal can only be pressed when the endodontic tip is properly placed inside the root canal.

Warning

Use a disinfected handpiece with a sterilized tip after each scaling treatment.

3.3 Supragingival Air polishing

3.3.1 Assess the patient's oral condition and preset the power and water flow levels. For ULTICLEAN UC600L, it is recommended to start at power level 2 and water flow level 3. Adjust the water flow and power as needed throughout the scaling procedure based on the patient's oral sensitivity and overall condition.

3.3.2 Before air polishing, eject spray into an external container for 1–3 seconds to ensure even air and water before treating the patient.

3.3.3 Before air polishing, the patient should wear goggles and have a protective covering of their face. Apply a small amount of lip balm to the patient's lips. The operator must wear goggles or a protective mask.

3.3.4 It is generally recommended to hold the handpiece in a pen-like grip.

3.3.5 During scaling treatment, align the nozzle with the tooth surface. Maintain 3–5mm distance between the air outlet of the nozzle and the tooth surface, and hold the nozzle at a 30°–60° angle to the tooth surface, as illustrated in Fig. 1.

3.3.6 A high-speed exhaust device on the dental unit is used to capture the air/powder mixture reflected from the tooth surface during treatment.

[Tip 1] There is no fixed sequence for ultrasonic and air polishing supragingival scaling. Adjust the order as needed based on the patient's oral condition and treatment goals.

[Tip 2] Protect the patient's soft tissues, such as lips, gums, and tongue, during air polishing scaling. Use dental mirrors and gauze to shield these areas and prevent powder from ejecting or reflecting onto the soft tissues, which could cause discomfort.



Fig. 1 Supragingival air polishing diagram

3.4 Subgingival Air polishing

3.4.1 When the patient's periodontal pocket probing depth exceeds 4 mm, subgingival air polishing treatment is recommended.

3.4.2 Install the subgingival nozzle before use. Remove the subgingival nozzle from its packaging and attach it to the distal end of the subgingival handpiece. Manually tighten the nozzle nut onto the handpiece, adjust the nozzle angle as required for treatment, and then secure the nozzle using a wrench. Note that a light force is applied with a wrench to prevent the nozzle from falling out. Note: Apply only light force with the wrench, just enough to prevent the nozzle from coming off.

3.4.3 Assess the patient's periodontal condition and preset the power and water flow levels. For ULTICLEAN UC600L, it is recommended to start at power level 1 and water flow level 3. Adjust the water flow and power as needed throughout the scaling procedure based on the patient's periodontal sensitivity and overall condition.

3.4.4 It is generally recommended to hold the handpiece in a pen-like grip.

3.4.5 When performing routine subgingival air polishing with a subgingival handpiece, it is recommended to use the nozzle to remove plaque from the 4-9mm deep periodontal pocket under the gums. During the procedure, perform a vertical (up-and-down) scaling motion

3.4.6 Air polishing should not exceed 5 seconds for each periodontal pocket point, and prolonged application in a single area should be avoided.

[Tip 1] Do not pull out the handpiece during operation.

[Tip 2] Only subgingival air polishing powder can be used for subgingival air polishing. The use of supragingival air polishing powder may harm the patient.

[Tip 3] Caution is advised when providing oral care or treatment to patients with heart disease, pregnant women, or young children.

[Tip 4] Please drain the water from the hose before each scaling treatment.

3.5 Function Settings

3.5.1 Press the temperature adjustment button in the ultrasonic or air polishing mode to adjust the water temperature. The available temperature settings are listed in the table below.

ULTICLEAN UC600L	Air Polishing Temperature Display/°C (±5°C)	OFF	25	30	35	40
	Ultrasonic Scaling Temperature Display/°C (±5°C)	OFF	24	28	32	36

Note: The heating temperature of the ULTICLEAN UC600L is dependent on the water temperature used, with the target temperature determined by the device main unit.

[Tip] During operation, some heat may dissipate as water flows through the piping system, resulting in an actual output temperature slightly lower than the set temperature. The rate and extent of heat loss may vary depending on external conditions such as ambient temperature. This may cause fluctuations in the output water temperature, which is a normal phenomenon.

3.5.2 Press the water supply mode setting button to switch between the two available modes: "Water Reservoir Supply" and "External Water Supply". In Water Reservoir Supply mode, ensure that the water reservoir is properly installed. Adjust the water flow by pressing the "+" or "-" buttons for water flow control on the screen. In External Water Supply Mode, connect the external water source and adjust the water flow using the water flow adjustment knob located on the back of the main unit.

3.5.3 If specialized cleaning solutions are used during the scaling treatment, please flush the water path with purified water (or distilled water) after the procedure is completed:

3.5.4 Tap the "Setting" button on the screen to enter the settings interface.

(1) Press "Language Setting", select the desired language and save to change the interface language.

(2) Press the Touch Sound button to turn the touch sound on or off.

(3) Press the Brightness Adjustment button to adjust the screen brightness (three levels available).

(4) Click the Quick Start button in Settings, then scan the QR code on the screen with your mobile device to watch the Quick Start video.

(5) Press the Security Code button to display the device's security QR code.

(6) Press the Restore Factory Settings button to reset all parameters to factory defaults.

3.6 Safe Exit

After completing the treatment procedure, please turn off the power switch and unplug the 220V~ mains power cord. Ensure the device safely exits the operating mode.

3.7 Maintenance

3.7.1 Air polishing handpiece and nozzle maintenance

3.7.1.1 Remove the air polishing handpiece, unscrew the nozzle and pull out the nozzle (the nozzle shall be removed in advance for subgingival handpiece).

3.7.1.2 Aim an air gun at the nozzle and blow away any remaining powder inside the nozzle.

3.7.1.3 Blow dry the front and rear ends of the handpiece, removing any residual water with an air gun.

3.7.1.4 If the nozzle is clogged, use a cleaning needle to clear it. For severe blockages, soak the nozzle in hot water before using the cleaning needle to unclog it. Multiple cycles of soaking and cleaning may be necessary.

3.7.1.5 Ensure the handpiece and nozzle are safeguarded from drops or impacts damaged to avoid deformation. A damaged nozzle can lead to irregular water flow and reduced mist coverage on the powder, while a damaged handpiece may prevent a proper connection between the handpiece and the cord.

3.7.1.6

- ① Unclog with a short cleaning needle.
- ② Unclog with a long cleaning needle.
- ③ Blow away with an air gun.



①



②



③

3.7.2 Daily maintenance of powder container

3.7.2.1 It is recommended to estimate the required amount of powder before each use, and fill as needed. Powder left in the container for extended periods is prone to moisture absorption, which may affect subsequent performance. Therefore, please empty any remaining powder from the container after each treatment.

3.7.2.2 Please blow away the powder remaining in the powder container and the powder left on the threads of the container and of the container lid with an air gun before shutting down the device every day. Failing to clean the powder container for an extended period can reduce efficiency. Powder buildup on the threads can interfere with the container's seal and affect the smoothness of the lid's tightening.

3.7.2.3 If the powder becomes damp, pour it out and remove any powder adhering to the inner walls. Residual damp powder may obstruct powder flow and reduce the efficiency of air polishing during subsequent use.

3.7.3 Daily maintenance of main unit

3.7.3.1 Before and after each air polishing treatment, press the "Clean" button on the screen. The main unit will automatically activate the air polishing pipeline cleaning mode, which runs for 20 seconds and then stops automatically. To stop the cleaning mode early, press the "Clean" button again.

3.7.3.2 When refilling powder during operation, press the "Clean" button first to decompress any air pressure build-up within the powder chamber. This prevents powder from being ejected from the bottom of the container when it is removed.

3.7.3.3 If specialized cleaning solutions are used during scaling, fill purified water (or distilled water) in the water reservoir after the procedure is completed, pick up the handpiece and step on the foot pedal to make the water flow out of the handpiece to flush the pipeline for at least 1 min. The residual liquid in the pipeline will cause corrosion to metal parts such as connectors and solenoid valves.

3.7.3.4 If the batteries in the wireless pedal cannot be charged, it must be replaced. Battery replacement should be carried out by service personnel or the unit should be returned to the manufacturer for servicing.

3.7.3.5 After each treatment, remove the powder container from the device, and check that the pressure relief holes on both sides of the powder canister seat are not clogged; if clogging is found, please unclog it with a cleaning needle or tweezers.

[Tip] When refilling powder during operation, press the "Clean" button to decompress any air pressure build-up within the powder chamber. This prevents powder from being ejected from the bottom of the container when it is removed.

3.7.4 Cord cleaning

Ultrasonic waterway cleaning:

Air polishing waterway cleaning: Pick up the air polishing handpiece, push the “clean mode” on the screen. This will initiate the purging process of the air polishing handpiece, by forcing air through the air polisher handpiece and removing any powder residue.

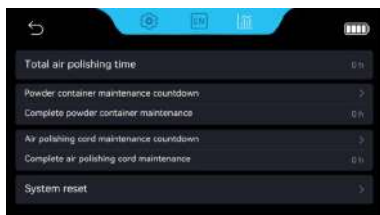
Simultaneous cleaning of ultrasonic waterway and air polishing waterway

Pick up both scaler & air polisher hose. Press “cleaning mode” on the screen and then press the yellow button. The system will initiate the purging process of water from both hoses. The process will take 2 minutes with an indicator on the screen.

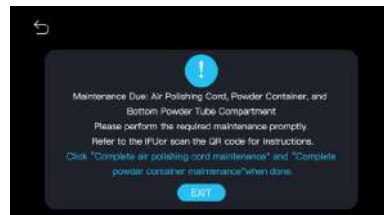
When picking up the ultrasonic handpiece and the air polishing handpiece and pressing the blue button, water will flow out of the ultrasonic and air polishing handpieces to automatically flush the pipes for 20 seconds.

3.8. Regular Maintenance

As the device works overtime, some parts shall be regularly maintained or replaced to ensure that the device is in good condition. When the set working hours of the device reaches, a pop-up window will appear on the main unit to remind the user for maintenance. Please scan the code according to the prompt in the pop-up window to view the maintenance video for operation. After the operation is completed, click OK in the pop-up window to complete the maintenance.



① Maintenance timing interface



② Click the link to view the operation video

3.8.1 Maintenance of bottom chamber (pinch valve)

3.8.1.1 After a pop-up window “Please clean the pinch valve in time” appears on the main unit screen to give a maintenance prompt, please turn off the device and cut off the power, water and air sources.

3.8.1.2 Remove the screws on the chamber cover at the bottom of the device. It is normal to find powder remaining on the chamber cover.

3.8.1.3 Blow away the powder left in the chamber with an air gun, re-close the base cover and tighten the screws.

3.8.1.4 After the operation is completed, click OK in the pop-up window on the main unit screen to complete the maintenance.



① Loosen the base cover screw



② Pry out the base cover from the slot with tweezers



③ Blow away the powder left in the pinch valve chamber with an air gun.



④ Re-install the base cover screw

Note: If any situation that cannot be handled occurs during maintenance, please contact the B.A. International or approved repair center.

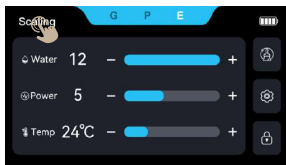
3.8.2 Maintenance of powder chamber

The powder chamber contains dental air polishing powder. Powder residue will be left in the chamber during operation. Therefore, please remove powder residue in time after use to prevent clumping, which can cause clogging of the powder path of the powder container, thus affecting the air polishing effect.

3.8.2.1 When a pop-up window "Please clean the powder chamber in time" appears on the main unit screen, please click the "Clean" button on the screen to release the pressure, and then remove the powder chamber for maintenance.

3.8.2.2 After the powder chamber maintenance is completed, confirm OK in the pop-up window on the main unit screen to complete the maintenance.

- ① Click "Clean"
- ② Take out the powder container
- ③ Pour out the remaining powder
- ④ Blow the powder container cover
- ⑤ Blow the inner wall of powder container
- ⑥ Blow the external threads
- ⑦ Blow the bottom of the powder container
- ⑧ Blow the powder container mounting base
- ⑨ Maintenance completed



①



②



③



④



⑤



⑥



⑦



⑧



⑨

3.8.3 Maintenance of air polishing cord

As the air polishing cord is a consumable part, it will wear and break after the device works for a certain time. Please replace the air polishing cord in time according to the prompts in the pop-up window to ensure the normal operation of the device; after the replacement is completed, click OK in the pop-up window to complete the maintenance.

3.8.3.1 Check the powder discharge hole on the cord for air or powder leakage before each daily use. If air or powder leakage occurs, please check it in time and replace the o-ring or the cord.

3.8.3.2 When a pop-up window "Please replace the air polishing cord in time" appears on the main unit screen to give a maintenance prompt, please press the "Clean" button on the screen. After the cleaning is completed, remove the old air polishing cord.

3.8.3.3 When removing the air polishing cord, loose the cord nut in the left-handed direction, and then gently pull out the cord; replace the corresponding o-ring or re-install a new cord and tighten it.

3.8.3.4 After the operation is completed, click OK in the pop-up window on the main unit screen to complete the maintenance.



① Loosen the cord nut in the left-handed direction



② Gently pull out the cord



③ Replace the o-ring or install a new cord



④ Reinstall the cord

Note: If any situation that cannot be handled occurs during maintenance, please contact the distributor or manufacturer in time.

3.8.4 Filter maintenance

3.8.4.1 Please connect the compressed air source within the specified air pressure range (0.55 MPa–0.75 MPa) according to the device working requirements; too low pressure will affect the air polishing output effect, and too high air pressure may cause leakage or damage to parts such as air hose, joints, and powder chambers. Please use a medical air compressor to supply air to this device. The use of an industrial air compressor is prohibited.

3.8.4.2 A large amount of liquid will be produced after the air is compressed by the compressor. This easily causes the air polishing powder to agglomerate, resulting in the device being clogged and affecting the normal use. Therefore, please install an air source drying equipment (such as a refrigerated dryer) in advance before using the air polishing equipment, and check the drying equipment every day to ensure normal operation. The use of dry compressed air can greatly reduce the clogging phenomenon.

3.8.4.3 Regularly check the o-rings of the handpiece, cord, powder container, and water reservoir for any default such as damage, deformation or falling off. If any of the above defaults is observed, please replace it in time in accordance with the product instructions. O-rings of corresponding specifications are provided in the device accessories.

3.8.4.4 Check the air filter monthly and see if there are any impurities in the filter. If any impurities are observed, replace the filter in time, and check the cleanliness of the air compressor and its environment. If there is no impurity, it is recommended to replace the filter every 24 months. A spare filter is included in the device accessories. When replacing the filter, rotate it to an appropriate angle and pull it out, and then install a new filter (see

the figure below).



1. Air source filter
2. External water filter

4. Perishable Parts and Troubleshooting

4.1 Description of perishable parts

As some parts are frequently attached and removed during operation, o-rings may be damaged and shall be replaced at irregular intervals as needed.

4.1.1 O-ring at handpiece connection:



Air polishing handpiece cord

1. Damaged or missing O-rings will result in water leakages.



Air polishing handpiece cord

1. Damaged or missing O-rings will result in water leakages.

4.1.2 O-ring connection between the air polishing handpiece cord and the main unit:



Disassembly of the air polishing handpiece cord from the main unit

1. After a prompt "Replace Cord" is displayed on the screen
2. Turn the cord connector nut in the left-handed direction
3. Gently pull it out



Air polishing handpiece cord connector

1. Remove the damaged o-ring
2. Replace it by a new one with the corresponding specifications

4.1.3 O-ring at the bottom of the water reservoir:



600-mL/1400-mL water reservoir o-ring

The o-ring pointed by the arrow shall be replaced when found any water leakage.

4.2 Common Fault Analysis and Troubleshooting

Fault	Cause	Solution
A prompt message "Heating system failure, please turn off heating" pops up	The heating system fails and cannot work normally.	Enter the air polishing scaling interface, set the temperature setting to level 0, and other functions can be used normally. Contact the local distributor or BA International.

A prompt message "Power grounding failure in your clinic, leading to a safety risk; please enable the heating function after confirming that the grounding function is normal" pops up	The power supply is not grounded in the clinic	Enter the air polishing scaling interface, set the temperature setting to level 0, and other functions can be used normally. The power supply with a grounding protection is recommended.
A prompt message "Insufficient air pressure" pops up	Air source not connected	Check the air source connection and ensure that the pressure meets the device working requirements
	The air source pressure is too low (Minimum 5 Bars)	
	Or the external air hose is folded	
The touch screen is malfunctioning, or automatic level shifting occurs without touching the screen	Too much water on the screen	Wipe away the water from the touch screen
After power-on and stepping down the foot switch, the tip does not generate vibration and water does not flow out	Poor contact of the round foot switch	Insert the round foot switch plug
After power-on and stepping down the pedal, the tip does not generate vibration, but water flows out	Tip loose	Tighten the tip
	The connection plug between the cord and the circuit board is loose	Contact the local distributor or BA International
	Handpiece fails	Contact the local distributor or BA International
	Cord fails	Contact the local distributor or BA International
After power-on and stepping down the pedal, the tip generates vibration, and no water flows out	There are impurities in the solenoid valve	Contact the local distributor or BA International
	Waterway clogging	Unclog waterways with a three-way gun
Water still flows out of the handpiece after power outage	There are impurities in the solenoid valve	Contact the local distributor or BA International
The vibration of the tip becomes weak	Tip not tightened firmly	Tighten the tip
	The tip is loose due to vibration	Tighten the tip
	Tip wear	Change the tip
No air is discharged from the air polishing handpiece, but water flows out	No air source is connected or air source pressure is too low (Minimum 5 bars)	Check the air source connection and ensure that the pressure meets the device working requirements
	External air hose folded	Arrange the external air hose to avoid folding
	The air polishing handpiece is clogged	A cleaning needle is used to unclog
	The handpiece cord is clogged	Contact BA International or the local distributor
	The internal pipeline of main unit is clogged	Contact BA International or the local distributor
	Solenoid valve fails	Contact BA International or the local distributor

Air can be discharged, water can flow out, but no powder or less powder is discharged from the air polishing handpiece	The powder is attached to the inner wall of the powder container after moisture absorption, affecting the normal flow of the powder	Remove the powder adhered to the inner wall of the powder container
	The powder container is wrongly matched with the powder	Supragingival powder should be put in a supragingival powder container for use, and subgingival powder should be put in a subgingival powder container for use. They cannot be mixed with each other
Air can be discharged but no water flows out of the air polishing handpiece	Solenoid valve fails	Contact BA International or the local distributor
	The solenoid valve pipeline is clogged due to impurities	Disassemble the main unit and unclog the solenoid valve or pipeline
	Air polishing handpiece waterway is blocked	Blow the waterway of the handpiece with a high-pressure air gun or replace the handpiece
No air is discharged, and no water flows out the air polishing handpiece	Pedal connection fails	Reconnect the pedal
	Pedal fails	Repair or replace pedals
Powder leakage from the powder container	Damaged o-ring	Replace the o-ring
	The powder container lid is not screwed in place	Re-screw the lid
Water leakage from the air polishing handpiece	The cord o-ring is damaged, deformed or missing	Replace the o-ring
Difficulty in attaching and removing the handpiece	The handpiece clamp is deformed (on the handpiece cord)	Replace the clamp ring
Powder leakage from the base	The powder hose on the bottom is damaged	Replace the powder hose

Note: If the faults still can't be solved, please contact the local distributor or BA International.

4.3 Main Primary Hazard Factors of the Device

Type	Fault	Risk	Solution
Electric energy	Internal component connection wires fall off	There is a risk of electric shock.	Turn on the device and check if it works normally.
	Insulation is insufficient or aged		
	Electric shock to the patient through the applied part (action head)		
	Residual voltage at power input plug		
Thermal energy	There is no water mist spraying from the scaler tip or the working water flow is too small	The temperature of the scaler tip is too high, causing damage to the patient's oral tissue, and overheating of the dental pulp can cause irreversible damage.	Ensure water in the water reservoir or there is external water source connected during operation

Man-made error	Instrument sterilisation (disinfection)	No disinfection to the handpiece, unsterilised action head, or inadequate sterilisation may lead to cross infection among patients.	Please sterilize the handpiece and tip before each use
	Spray from oral aerosol of the patient	Possibility of infection to the operator.	The operator should wear adequate protection (such as goggles and masks) and the patient should be protected with a mask or drape during the ultrasonic or air polishing treatment.
	Tip wear	Dental cleaning efficiency is reduced.	The efficiency decreases after the tip wears. Please replace the tip in time.
	Tip break	The patient accidentally swallows the broken part.	Please replace the tip after damage and take out the broken tip timely to prevent the patient from accidentally swallowing it.
	Improper operation (improper power and water flow selection, use of tip, or air polishing operation)	This can cause excessive scaling to damage to the tooth tissue. Possibility of local emphysema.	Please follow the relevant operating procedures of the medical department and relevant regulations when operating the device, and only trained physicians or technicians are allowed to use it.
	Scaling of titanium implant/porcelain-fused-to-metal restoration	The improper scaling process may lead to bonding agent loosening, hidden cracks or even porcelain fracture in the porcelain-fused-to-metal restoration.	Care shall be given to the scaling of titanium implants and porcelain-fused-to-metal restoration.
Bio incompatibility	Trial use of powder that does not comply with regulations	Causes anaphylactic reaction in the patient's oral tissue.	For safety, please use approved powder.
Electromagnetic interference	Electromagnetic interference generated from dental scalers can affect patients or doctors with pacemakers	Causing the patient death.	Do not use it for patients with pacemakers.
Mechanical damage	Use high energy levels and long action time	Damage to tissues.	The device is for use by trained physicians or technicians only.
	Sound output and tip pressure is high	Damage to the tooth surface.	The device is for use by trained physicians or technicians only.
Transportation and storage	Improper packaging method and improper storage conditions	The device does not work properly.	Please conduct the transportation and storage according to the transportation and storage methods and conditions specified in the instructions.

Disposal and waste	No information on waste disposal is provided or the information provided is insufficient	Pollution to the environment or causing discomfort to patients.	The device does not contain hazardous components and can be disposed of or destroyed in accordance with local regulations.
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5. Cleaning, Disinfection, and Sterilisation

5.1 Cleaning and Disinfection of Device Surfaces

Recommended wipes: Clean disinfectant wipes (with an alcohol content of less than 35%) that comply with the applicable standards of the country where the product is marketed for cleaning and disinfection.

Operating procedure:

After each patient treatment, clean and disinfect the device using the recommended wiping supplies. Wipe and dry the device thoroughly after disinfection or decontamination.

Precautions:

1. Do not wipe the power interface.
2. The wipes used must not be overly saturated with liquid: ensure no liquid drips when the wipe is lifted, and no free-flowing liquid remains on the wiped surface.
3. To remove residues left by various wipes on the device, clean the surfaces with a microfiber cloth moistened with warm water, then dry with a lint-free soft cloth. It is recommended to perform this cleaning once per week.
4. When using the wipes, strictly follow the instructions provided by the wipe manufacturer. Do not use Advantaclear wipes, as this type of wipe will damage the device.

Drain the water tubing-dry mode

After each use, the water in the water tubing should be drained to avoid the retention of residual water and the growth of bacteria. The method of draining the water in the tubing is as follows:

(1) In ultrasonic mode

a. If water bottle is used for water supply:

After treatment, remove the ultrasonic handpiece and water bottle, and pour out the remaining liquid in the water bottle. Touch the "Auto Purging" button on the screen and step on the "water mode" (blue) button on the pedal. At this time, you can release the pedal and it will stop automatically after 30 seconds. Touch the "Auto Purging" button again and repeat the above steps for 3 times to drain the water in the tubing.

b. If external water supply is used:

After treatment, turn off the external water switch, remove the ultrasonic handpiece, 17 touch the "Auto Purging" button on the screen and step on the "water mode" button (blue) on the pedal. At this time, you can release the pedal and it will stop automatically after 30 seconds. Touch the "Auto Cleaning" button again and repeat the above steps for 3 times to drain the water in the tubing.

(2) In Air polishing mode

Disconnect the air polisher handpiece and water bottle from the unit, pour out the remaining water in the water bottle or turn off the external water switch, adjust all settings to the maximum level, press the pedal continuously for 1 min, then release the pedal to drain the water in the tubing.

The cleaning, disinfection and sterilisation of the ultrasonic handpiece, scaling tip, air polishing handpiece, nozzle, and torque wrench are as follows.

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

Warnings

- 1) The use of strong detergent and disinfectant (alkaline pH>9 or acid pH<5) will reduce the life span of products. And in such cases, the manufacturer takes no responsibility.
- 2) Do not clean the ultrasonic handpiece with ultrasonic cleaning machine.
- 3) This device shall not be exposed to high temperature above 138°C.
- 4) Please note that disinfection is not a substitute for cleaning or sterilisation. Both cleaning and sterilisation must be performed after each use.

Reprocessing limit

The products have been designed for a large number of sterilisation cycles. The materials used in manufacturing were selected accordingly. However, with every renewed preparation for use, thermal and chemical stresses will result in aging of the products. The maximum number of sterilisations for the ultrasonic handpiece is 600 times. For air polishing handpiece, it is 1000 times. For tips, it is 300 times. And for torque wrench, it is 1000 times.

5.2 Initial processing

5.2.1 Processing principles

It is only possible to carry out effective sterilisation after the completion of effective cleaning and disinfection. Please ensure that, as part of your responsibility for the sterility of products during use, only sufficiently validated equipment and product-specific procedures are used for cleaning/disinfection and sterilisation, and that the validated parameters are adhered to during every cycle.

Please also observe the applicable legal requirements in your country as well as the hygiene regulations of the hospital or clinic, especially regarding additional requirements for the inactivation of prions.

5.2.2 Post-operative treatment

The post-operative treatment must be carried out immediately, no later than 30 minutes after the completion of the operation. The steps are as follows:

1. Let the ULTICLEAN UC600L Dental Scaler and Air Polisher work for 20-30 seconds under irrigation mode to flush the ultrasonic handpiece, tip, air polishing handpiece and nozzle.
2. Remove the ultrasonic handpiece and air polishing handpiece from the ULTICLEAN UC600L Dental Scaler and Air Polisher, and rinse away the dirt on the surface of product with pure water (or distilled water/deionized water).
3. Dry the product with a clean, soft cloth and place it in a clean tray.

5.3 Preparation before cleaning

The devices must be reprocessed in a disassembled state. Steps are as follows: Tools: torque wrench (or endo wrench), tray, soft brush, clean and dry soft cloth

1. Remove the tip from the ultrasonic handpiece with torque wrench provided by BA International Ltd and then put the tip and wrench into a clean tray.
2. Unscrew the nose cone of handpiece counterclockwise, remove the sealing ring, light diffuser, and put them in the tray.
3. Remove the nozzle from air polishing handpiece and then put them into a clean tray.
4. Use a clean, soft brush to carefully brush the joints between handpiece and the connector of cable, front thread, horn, nose cone, seal ring, light pipe, and nozzle until the dirt on surface is not visible. Then use soft cloth to dry the handpiece and accessories and put them into a clean tray. The cleaning agent can be pure water, distilled water or deionized water.

5.4 Cleaning

The cleaning should be performed no later than 1 hour after the operation.

Preference is given to automated reprocessing methods, especially due to the better standardizing potential and industrial safety.

Automated cleaning

- The cleaner is proved to be valid by CE or FDA certification in accordance with ISO 15883.
- There should be a flushing connector connected to the inner cavity of the product.
- The cleaning procedure is suitable for the product, and the irrigating period is sufficient.
- Do not clean the Ultrasonic handpiece with ultrasonic cleaning machine.

1. Carefully place the product into the washer-disinfector. Fixation of product is needed only when the product is removable in the device. The products are not allowed to contact each other.

2. Connect the interface of the nozzle to the appropriate flushing connector of the automatic washer-disinfector.

3. Start the program of the washer-disinfector:

- 3 min pre-cleaning with cold purified water
- emptying
- 5 min washing with suitable cleaning agent (<45°C)

Temperature: 20°C ~ 40°C

- emptying
- 1 min intermediate rinsing with cold deionized water
- emptying
- 1 min intermediate rinsing with cold deionized water
- emptying

Notes

a) The cleaning agent can be pure water, distilled water and deionized water or multi-enzyme. Ensure that the selected cleaning agent is compatible with the product.

b) In washing stage, the water temperature should not exceed 45 °C, otherwise the protein will solidify and would be difficult to remove.

5.5 Disinfection

Notes

1) According to ISO 17664 no manual reprocessing methods are required for these devices. If a manual reprocessing method has to be used, please validate it prior to use.

2) The washer-disinfector is proved to be valid by CE or FDA certification in accordance with ISO 15883.

3) Regularly repair and inspect the disinfector. Disinfection must be performed no later than 2 hours after the cleaning phase. Automated disinfection is preferred if conditions permit.

5.6 Drying

Automated Drying: Drying of outside of instrument through drying cycle of washer/disinfector. If needed, additional manual drying can be performed using a lint free towel. If using sterile compressed air for drying insufflate cavities of instruments, the air must be filtered by HEPA.

Manual drying:

If your cleaning and disinfection process does not have an automatic drying function, dry it after cleaning and disinfection.

Methods

1. Spread a clean white paper (white cloth) on the flat table, point the product against the white paper (white cloth), and then dry the product with filtered dry compressed air (maximum pressure 3 bar). Until no liquid is sprayed onto the white paper (white cloth), the product drying is completed.
2. It can also be dried directly in a medical drying cabinet (or oven). The recommended drying temperature is 80°C ~ 120°C and the time should be 15 ~ 40 minute.

Notes

- a) The drying of product must be performed in a clean place.
- b) The equipment used should be inspected and maintained regularly.

5.7 Inspection and maintenance

In this chapter, we only check the appearance of the product. After inspection, if there is no problem, the Ultrasonic handpiece should be immediately reassembled. Install the sealing ring, and nose cone in sequence to the ultrasonic handpiece, and then tighten the nose cone clockwise. The nozzle should be immediately inserted into air polishing handpiece.

5.7.1 Check the product. If there is still visible stain on the product after cleaning/disinfection, the entire cleaning/disinfection process must be repeated.

5.7.2 Check the product. If it is obviously damaged, smashed, detached, corroded or bent, it must be scrapped and not allowed to continue to be used.

5.7.3 Check the product. If the accessories are found to be damaged, please replace them before use. The new accessories for replacement must be cleaned, disinfected and dried.

5.7.4 If the service time of the product reaches the specified service life, please replace it in time.

5.8 Packaging

Install the cleaned and dried product and quickly package it in a FDA-cleared wrap or pouch or other method of maintaining sterility for the sterilisation.

Notes

- a) The packaging environment and related tools must be cleaned regularly to ensure cleanliness and prevent the introduction of contaminants.
- b) Avoid contact with parts of different metals when packaging.

5.9 Sterilisation

Use the following steam sterilisation procedures (fractional pre-vacuum procedure*) for sterilisation:

1. The steam steriliser complies with EN13060 or is certified according to EN 285 to comply with ISO 17665.



2. The sterilisation time is 4 minutes at a temperature of 134 °C and a pressure of 2.0 bar ~ 2.3 bars, with drying time of 20 minutes.

Notes

- a) Only products that have been effectively cleaned and disinfected are allowed to be sterilised.
- b) Before using the steriliser for sterilisation, read the instruction manual provided by the equipment manufacturer and follow the instructions.
- c) Do not use hot air sterilisation and radiation sterilisation as this may result in damage to the product.

d) Please use the recommended sterilisation procedures for sterilisation. It is not recommended to sterilise with other sterilisation procedures such as ethylene oxide, formaldehyde and low temperature plasma sterilisation. The manufacturer assumes no responsibility for the procedures that have not been recommended. If you use the sterilisation procedures that have not been recommended, please adhere to related effective standards and verify the suitability and effectiveness.

*Fractional pre-vacuum procedure = steam sterilisation with repetitive prevacuum. The procedure used here is to perform steam sterilisation through three pre-vacuums.

The ULTICLEAN UC600L Dental Scaler and Air Polisher is compatible with the DAC Universal adapter.

5.10 Water Hygiene Instructions–ULTICLEAN UC600L Dental Scaler and Air Polisher

1. Water Supply (For Processed Water/Treatment Water) Quality of water to be used: Sterilised or demineralized water (sterile filter/bacteria filter) must be used to operate the UC600L. The temperature of the water should be between 10°C and 18°C. Other liquids must not be used.

2. General Instructions for Handling the Water Tank

- Prior to using the device, both water tanks must be filled with either sterilised or demineralized water (drinking water quality) and 1% Alpron from ALPRON MEDICAL GmbH (10 ml to 990 ml drinking water). At the end of each treatment day, the water tank must be removed, emptied and dried with the opening facing downwards.

- The water tanks must be cleaned (rinsed) once or twice a week with for example 4% of Alpron solution from ALPRON MEDICAL GMBH.

- After cleaning, the water tanks should be disinfected with BC-San 100 from ALPRON MEDICAL GmbH during the non-working period.

- Important: When using BC-San 100, the instructions provided by ALPRON must be observed.

3. Instructions for Daily Use

- To maintain the water quality and to stabilize organic and inorganic substances in the sterilised or demineralized water, add 1% Alpron. Alpron is used to prevent algae formation and lime precipitation. When used daily, at 15°C German hard water = Medium Soft.

- The water lines must be rinsed for 2 minutes in the morning before use and for 20-30 seconds after each patient.

Application:

1) Insert the water tank filled with water and 1% Alpron concentrated onto the device. Please follow the manufacturer's instructions.

2) Set the water supply to the "Water Tank".

3) To purge the operating water paths, hold the hoses of the UC600L at a short distance in front of the purging basin, and press the "Purge" button on the screen and press the "blue" button on the foot control of the UC600L to start the purging process. After 30 seconds of purging, the UC600L automatically ends the cleaning mode. The cleaning process can also be stopped by pressing the foot control again. Once the purging process is complete, the water tank must be removed from the device and cleaned with a 4% Alpron solution and water. The water tank can then be refilled with sterilised or demineralized water and 1% Alpron solution, ready for use.

Note: Do not leave the water that was used for treatment in the water tank overnight.

4. Weekly Sterilisation and Preservation of the Water Lines with Bilpron

The ready-to-use Bilpron solution from ALPRON MEDICAL GmbH should be used 1-2 times a week to effectively remove organic and inorganic residues in the water pipes. Bilpron is

bactericidal and fungicidal.

Application:

1) Insert the tank filled with Bilpron onto the device. Please follow the manufacturer's instructions.

2) Set the water supply to "Water Tank".

3) To purge the operating waterways, hold the handpiece/instrument hoses of the UC600L at a short distance in front of the rinsing basin, then press the "Purge" button on the screen and press the "blue" button on the device's foot control to start purging the Bilpron solution. When the blue-coloured Bilpron solution visibly emerges from all instrument outlets, the cleaning mode can be stopped by pressing the foots control again. The Bilpron solution should remain in the UC600L's water channels for at least 12 hours but no longer than 3 months. Bilpron remains active in the process water paths of the device for the specified exposure time, i.e. overnight. It must be ensured that Bilpron has been completely purged out of the water system before the next treatment (i.e. the next morning/break time). To do this, insert a filled water tank with treatment water onto the device as described under point 3. The instrument hoses must be purged until no more blue coloured solution emerges.

5. Disinfection/ Treatment of the Water Tank with BC-San 100

The water tanks must be disinfected at least once a week with the highly effective BC-San 100 from ALPRON. For this purpose, the emptied and dried water tanks (see section 2) must be mixed with one bottle (100 ml) of BC-San 100 from ALPRO MEDICAL GmbH to 1 - 2 litres of water and poured into the water tank, closed and labelled. The solution must not be drunk. The solution should remain in the water tank when not in use (e.g. weekend).

Before starting work, the contents of the water tanks must be emptied down the drain and thoroughly rinsed several times with sterilised or demineralized water.

Please be sure to observe all safety instructions and information on the safety data sheets of ALPRON MEDICAL GmbH for the products Alpron, Bilpron and BC-San 100 and refer to our website for more information: www.alpro-medical.de

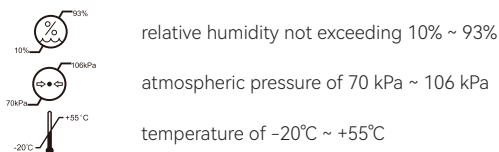
6. Storage, Maintenance, and Transportation of the Device

6.1 Storage and Maintenance of the Device

6.1.1 The device should be handled with care, kept away from the shaking source, and installed or stored in a well-ventilated place.

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

6.1.3 The device should be stored in an environment with



6.1.4 When the device is not in use, turn off the power supply and unplug the power plug. If it is not used for a long time, it should be energised and connect to water and air once a month for five minutes.

6.2 Device transportation

6.2.1 Excessive impact and shake should be prevented during transportation. Handle with care and avoid inversion.

6.2.2 The device should not be transported with dangerous goods.

6.2.3 Avoid exposure to sun, rain, or snow during transportation.

7. Environmental Protection

Name of part	Toxic and hazardous substances or elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr6+)	Polybrominated biphenyl (PBB)	Polybrominated diphenyl ether (PBDE)
Main unit	○	○	○	○	○	○
Handpiece	○	○	○	○	○	○
Tip	○	○	○	○	○	○
Foot pedal	○	○	○	○	○	○
Mechanical components, including screws, nuts, and washers	○	○	○	○	○	○

○: Indicates that the content of the toxic and hazardous substances in all homogeneous materials of the part is below the limit requirements specified in SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

×: Indicates that the content of the toxic and hazardous substance in at least one homogeneous material of the part exceeds the limit requirements specified in SJ/T 11363-2006.

(This product complies with the environmental protection requirements of EU RoHS; currently, there is no mature technology in the world that can replace or reduce the lead content in electronic ceramics, optical glass, steel and copper alloys)

According to the Management Methods on Control of Pollution from Electronic Information Products and related standards of the People's Republic of China, please comply with the product safety and usage precautions, and recycle or dispose of used products in an appropriate manner according to local laws and regulations.

8. After-sales service

If there is any malfunction with the device or if there is any need for maintenance or repairs, please send the instrument to B.A. International or an approved B.A. International dealer.

9. European authorized representative

EU REP MedNet EC-REP C IIb GmbH
Borkstrasse 10, 48163 Muenster, Germany

10. EMC-Declaration of conformity

A list of all cables are replaceable:

Cable name	Cable type	Cable length
Power cord	Unshielded parallel cable	3 m
Ultrasonic handpiece cord	Unshielded parallel cable	1.6 m
Air polishing handpiece cord	Unshielded parallel cable	1.6 m

 **Warning**

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

Guidance and manufacturer's declaration – electromagnetic emissions		
The Dental Scaler and Air Polisher is intended for use in the electromagnetic environment specified below. The customer or the user of the Dental Scaler and Air Polisher should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The Dental Scaler and Air Polisher use RF energy only for its internal function. Therefore, its RF emissions is very low and is not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR11	Class B	The Dental Scaler and Air Polisher is suitable for use 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 IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Guidance & Declaration — electromagnetic immunity			
The Dental Scaler and Air Polisher is intended for use in the electromagnetic environment specified below. The customer or the user of the Dental Scaler and Air Polisher should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	±2kV for power supply lines	±2kV for power supply 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	0% U_T , 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% U_T , 1 cycle and 70% U_T , 25/30 cycles at 0° 0% U_T , 250/300 cycle	0% U_T , 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% U_T , 1 cycle and 70% U_T , 25/30 cycles at 0° 0% U_T , 250/300 cycle	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Dental Scaler and Air Polisher require continued operation during power mains interruptions, it is recommended that the Dental Scaler and Air Polisher be powered from an uninterruptible power supply or a battery.

Power frequency magnetic field IEC 61000-4-8	30 A/m 50 & 60 Hz	30 A/m 50 & 60 Hz	Power frequency magnetic fields/ Proximity magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Proximity magnetic fields IEC 61000-4-39	Pulse modulation 2.1kHz, 65A/m for 134.2kHz Pulse modulation 50kHz, 7.5A/m for 13.56MHz	Pulse modulation 2.1kHz, 65A/m for 134.2kHz Pulse modulation 50kHz, 7.5A/m for 13.56MHz	
NOTE U _T is the a.c. mains voltage prior to application of the test level.			

Guidance & Declaration — electromagnetic immunity			
The Dental Scaler and Air Polisher is intended for use in the electromagnetic environment specified below. The customer or the user of the Dental Scaler and Air Polisher should assure that they are 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	Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Dental Scaler and Air Polisher, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.
Radiated RF IEC 61000-4-3	3 V/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)	3 V/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)	

Recommended separation distances between portable and mobile RF communications equipment and the model			
The model is intended for use in electromagnetic environments in which radiated RF disturbances is controlled. The customer or the user of the model can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model is recommended below, according to the maximum output power of the communications equipment.			
Rated maximum out put 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 manufacture.

NOTE I At 80 MHz – 800 MHz, the separation distance for the higher frequency rane applies.

NOTE II These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

The device has been tested and homologated in accordance with EN 60601-1-2 for EMC. This does not guarantee in any way that this device will not be affected by electromagnetic interference Avoid using the device in high electromagnetic environment.

11. Explanation of symbols



Used indoor only



Follow Instructions for Use



Type B applied part



Keep dry

IPX0

Ordinary equipment



Decorative only



Alternating current



Protective earthing (ground)



Waterless mode button



Wireless connectivity

Max

Recommended maximum powder loading

ON
OFF

Power switch

Min

Recommended maximum powder/
liquid level



Manufacturer



Country of manufacture and
date of manufacture YYYY.
MM.DD



Warning



Fragile, handle with care

IPX1

Anti-drip equipment



Must be disposed of separately
from normal household waste



Foot pedal



Sterilisable at specified
temperature



Cleaning mode button



Battery level display

Min

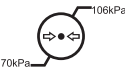
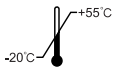
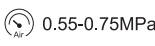
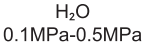
Recommended minimum
powder loading



Recyclable packaging materials

Max

Recommended minimum
powder/liquid level

	Wireless connection		Batch code
BOOST	Boost mode button		Fuse
	Direct current	Max 720W	Maximum power of the heater: 720 W
	Do not reuse		Do not use if package is damaged
	CE mark		Comply with 3C standards
	Serial number		H ₂ O Water flow adjustment knob for external water supply mode
	Class II equipment		Pollution control mark of electronic information products
	Atmospheric pressure limitation for storage: 70 kPa–106 kPa		Temperature limitation for storage: -20°C–+55°C
	Humidity limitation for storage: 10%–93%		Air inlet pressure: 0.55 MPa–0.75 MPa
	Water inlet pressure: 0.1 MPa–0.5 MPa		Authorised Representative in the EUROPEAN COMMUNITY
	EU Importer		Distributor
	Reference No. of product		Unique device identifier

12. Statement

All rights to modify the product are reserved to the manufacturer without further notice. The pictures are only for reference.

According to the EU Medical Devices Regulation, users/patients are obliged to report serious events with a medical device to the manufacturer and to the competent authority of the country in which they occurred.

	EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product, or if applicable, follow any agreements made between yourself. The mark on electrical and electronic products only applies to the current European Union Member States.
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B.A. International Ltd.
Unit 9, Kingsthorpe Business Centre
Studland Road, Northampton
NN2 6NE
UK
Web: www.bainternational.com



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



MedNet EC-REP C IIb GmbH
Borkstrasse 10 · 48163 Muenster · Germany

Model: ULTICLEAN UC600L

REF UC600L