

# P5

ULTRASONIC SCALER

## INSTRUCTION MANUAL



Please read the instruction manual carefully before operating



**P5** ULTRASONIC SCALER

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# 1 The installation and components of equipment

## 1.1 Instruction

Nanning Baolai Medical Instrument Co., Ltd. is a high-tech enterprise in researching, manufacturing and marketing dental ultrasonic scalers. As a new rapidly developing company, our professional team provides customers with excellent quality products, the best all-round technical support, and good after-sales service. Our products undergo stringent quality control throughout the production process, while our R&D department is actively engaged in equipment alteration and improvement to satisfy various demands from clients.

## 1.2 Functional characteristics

- The piezoelectric working way ensures that the machine always work on a steady power, high efficiency and generates little heat.
- Digitally controlled, automatic frequency tracking ensures that the machine always work on the best frequency and more steadily.
- The design of automatic amplitude compensation function reduces patients' discomfort.
- The scaling tip is made of high strength alloy material. The atomized spraying design forms the cavitations, and in conditions of water it will form oxygenated water to release the new eco-pure oxygen, which can efficiently inhibit periodontal anaerobic bacteria against periodontal diseases.
- Ergonomic design of handpiece makes it easy for long time use.
- Cable of the handpiece is made of imported silicagel tube, soft and durable.
- Axis of the handpiece is made of high-quality titanium alloy, strong and durable.
- Wide range power offers more convenience for operation.
- Beautiful appearance, small and light, exquisite craft.
- Detachable handpiece, could be autoclaved at 135°C and 0.22MPa.

### 1.3 Components

1.3.1 The following parts should be included in a complete P5 ultrasonic scaler:

Number	Description	Type	Quantity
01	Main unit	P5	1
02	Adapter	BL-PW-01	1
03	Foot switch	F1	1
04	Scaling tip	T1	2
05	Scaling tip	T2	1
06	Scaling tip	T3	1
07	Scaling tip	T4	1
08	Scaling tip	T5	1
09	Water pipe	Φ6mmx Φ4mmx2.5m	1
10	Torque wrench	TW2	1
11	Instruction manual	P5	1
12	Qualified certificate	P5	1
13	Warranty card	P5	1
14	Packing list	P5	1
15	“O” Water-proof circle	Φ3.3 x 1.0 mm	4

#### 1. 3.2 Product performance and structure

Ultrasonic scaler is composed of electrocircuit, waterway and ultrasonic transducer.

#### 1. 3.3 Scope of application

Ultrasonic scaler P5 is used for the dental calculus elimination.

## 1.4 The main technical specifications

### 1.4.1 Performance technical specifications

Adapter Input	230V ~ 50/60 Hz
Main unit input	24V ~ 50/60 Hz
Input power	≤40VA
Main unit fuse	250V/T 1.6AL
Output power	3W to 20W
Output primary tip vibration excursion	≤100 μm
Output tip vibration frequency	28kHz ±3KHz
Output half-excursion force	<2N
Water pressure	0.01MPa to 0.5MPa(0.1bar to 5bar)
Weight of main unit	0.55kg
Weight of adapter	0.85kg
Operating mode	Continuous operation
Energized from an external electrical power source	Class IIa
Degree of protection against electric shock	BF
Degree of protection against harmful ingress of water	Ordinary equipment (IPX0), Foot switch(IPX1)
Degree of safety of application in the presence of a Flammable Anesthetic Mixture with air or with Oxygen or Nitrous Oxide	Equipment not suitable for being used in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

#### 1.4.2 The conditions of working environment:

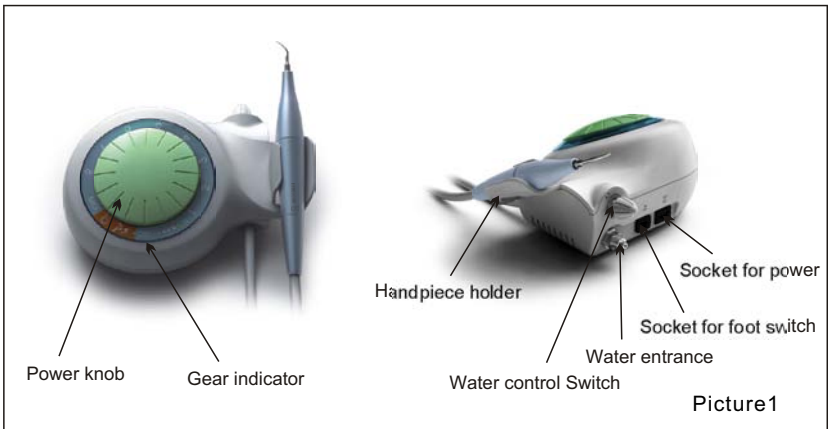
1.4.2.1 Environmental temperature:+10℃ to +40℃

1.4.2.2 Environmental humidity: 0 to 80%

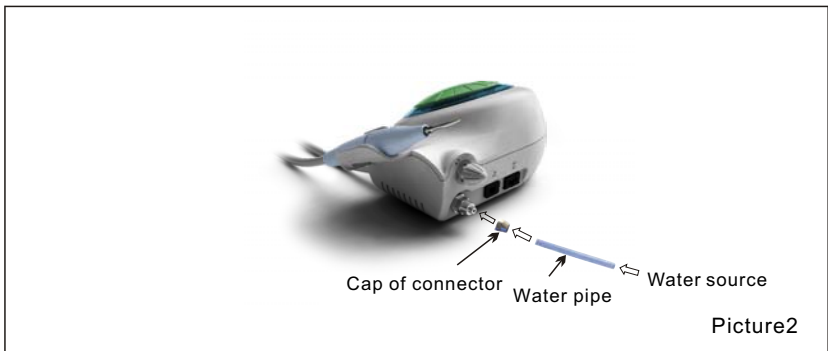
1.4.2.3 Atmospheric pressure: 700hpa to 1060hpa

## 1.5 Installation of the main components

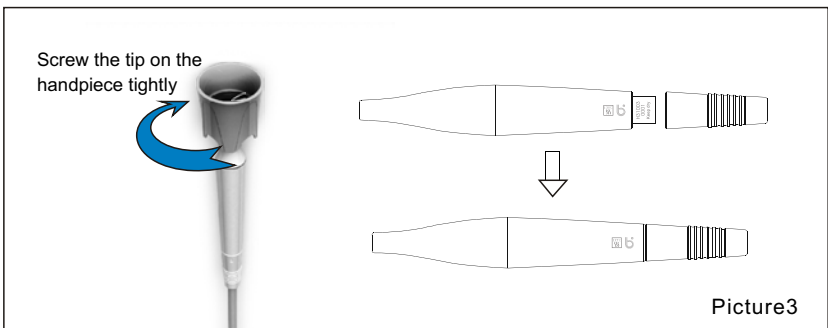
### 1.5.1 The top and side map of the main unit



### 1.5.2 Sketch map for connection of water supply system



### 1.5.3 Sketch map for how to install tip & connection of handpiece



## **2 Product function and usage**

- 2.1 Open the packing box, make sure that all the parts and accessories are complete according to the packing list. Take the main unit out of the box and put it on a stable plane.
- 2.2 Turn the water control switch to the max based on symbol as shown in 4.2.1[[note1](#)].
- 2.3 Insert the plug of the foot switch to its socket.
- 2.4 Connect one end of the water pipe to the water entrance, and the other end to the pure water source.
- 2.5 Select a suitable scaling tip as you need and screw it on the handpiece tightly by the torque wrench (picture 3).
- 2.6 Turn off the main unit power, then insert the plug of the power source to its socket, and then get through to the power.
- 2.7 Switch on the main unit, then the power indicator shines and start the machine.
- 2.8 Vibrating intensity: Adjust the vibration intensity as you need, generally turn the knob to 4-5 grade. According to patients' different sensitivity and the rigidity of the gingival tartar, adjust the vibration intensity during the clinical treatment.
- 2.9 Water volume adjust: Step on the foot switch, and the tip begins to vibrate, and then turn the water control switch to form fine spray to cool down the handpiece and clean the teeth.
- 2.10 The handpiece can be handled in the same gesture as a pen in hand.
- 2.11 During the clinical treatment, be sure not to make the end of tip touch the teeth vertically and not to make the tip overexert on the surface of the teeth in case of hurting the teeth and damaging the tip.
- 2.12 The normal frequency is extremely high. Under the normal working state of scaling tips, a light touch and a certain to-and-fro motion will eliminate the tartar without heating. Overexertion and long-time lingering are forbidden.



2.13 After finishing operation, keep the machines working for 20-30 seconds on the water supply condition in order to clean the handpiece and the scaling tip.

2.14 Sterilize the scaling tip, handpiece and torque wrench

◆ Note: Don't pull out the scaling tips when the foot switch is stepped on and the machine is producing ultrasonic vibrating.

2.15 Torque wrench usage

- a) The torque wrench's structure is designed in special way which can control the strength of the scaling tip's installation properly and correctly. It also can guarantee the operator screw or unscrew the scaling tip effectively and keep their hands away from being scratched.
- b) Take out the torque wrench and screw the scaling tip according to picture 3.
- c) Tip installation: Hold the handpiece and turn the tip toward direction as showed in picture 3 with the torque wrench. Turn two more circles when the tip stops, then the tip is installed.
- d) Tip uninstallation: Hold the handpiece, turn the wrench toward anti-clockwise direction.
- e) Sterilize the scaling tip in sterilizer after each treatment.
- f) The torque wrench must be cooled naturally after sterilization to avoid scald before using again.
- g) Keep the torque wrench in a cool, dry and ventilated place and make sure it is clean.

### 3 Sterilization

#### 3.1 Precautions

- a) Please pay attention to the handpiece during the process of operation and sterilization to see whether it is externally broken. No protective oil is allowed to be painted on the handpiece.
- B) There are two “O” shape water-proof rubber circles in each handpiece which need to be sterilized, plugged and unplugged repeatedly. For the purpose of extending useful time, dental lubricant should be used. The circles should be replaced once they are broken or over abrasive.

c) The following sterilization ways are forbidden:

- ① Boiled in liquor.
- ② Dipped in iodine, alcohol .
- ③ Torrefied in oven or microwave oven.

◆ Notice: We are not responsible for any damage of the torque wrench directly or indirectly made by any way in the above items.

### 3.2 Sterilization procedure

Operation	Operating mode	Warning
1 Manual cleaning disinfection	Disassemble handpiece from detachable cable. Disassemble tip from handpiece. Immerse them in the disinfectant solution assisted with ultrasonic device if suitable. Rinse handpiece & scaling tips & torque wrench thoroughly with clean, demineralised or distilled water and then dry them with filtered compressed air.	Avoid any contact between instruments or posts when placing in the solution, use kits, supports or container. Follow instructions and observe concentrations and time given by the manufacturer (see also general recommendation). Use purified water for rinsing. If a disinfectant solution contains a corrosion inhibitor, it is recommended to rinse the instruments , just before autoclaving.
2 Packaging	Pack handpiece & scaling tips & torque wrench in sterilization pouches.	Check the validity period of the pouch given by the manufacturer to determine the shelf life. Use packaging which are resistant up to a temperature of 141°C and in accordance with EN ISO 11607.
3 Sterilization	Steam sterilization at: 135°C and 0.22MPa during 18 min.	The instruments, posts and the plastic supports must be sterilized according to the packaging labelling. Use fractionated vacuum or gravity (less preferred) autoclaves (according to EN 13060, EN 285). Use validated sterilization procedure according to EN ISO 17665-1. Respect maintenance procedure of the autoclave device given by the manufacturer. Use only the listed sterilization procedures.
4 Storage	Keep handpiece & scaling tips & torque wrench in sterilization packaging in a dry and clean environment.	Sterility cannot be guaranteed if packaging is open, damaged or wet (check the packaging before using the instruments).

## 4 Maintenance

### 4.1 Troubleshooting and notes

Fault	Possible cause	Solutions
The scaling tip doesn't vibrate and there is no water flowing out when stepping on the switch.	The power pipe plug is in loose contact.	Make the plug insert to the socket well.
	The foot switch is in loose contact.	Insert the foot switch to its socket tightly.
	The fuse of transformer is broken.	Contact our dealers or us.
	The fuse in the main unit is broken.	Contact our dealers or us.
The scaling tip doesn't vibrate but there is water flowing out when stepping on the switch.	The tip is in loose contact.	Screw the tip on the handpiece tightly (picture 3).
	The connect plug between the handpiece and the circuit board is in loose contact.	Contact our dealers or us.
	Problem of handpiece.	Contact our dealers or us.
The scaling tip vibrates but there is no spray when stepping on the switch.	The water control switch is not on.	Turn on the water control switch <b>【note 1】</b> .
	There is impurity in the solenoid valve.	Contact our dealers or us.
	The water system is blocked.	Clean the water pipe by multi-function syringe <b>【note2】</b> .
There is still water flowing out after the power is off.	There is impurity in the solenoid valve.	Contact our dealers or us.
The handpiece generates heat.	The water control switch is in a low setting.	Turn the water control switch to a higher grade <b>【note 1】</b> .
The amount of spouting water is too little.	The water pressure is not high enough.	Make the water pressure higher.
	The water pipe is blocked.	Clean the water pipe by multi-function syringe <b>【note2】</b> .
The vibration of the tip becomes weak.	The tip hasn't been screwed on to the handpiece tightly.	Screw the tip on the handpiece tightly(as showed in picture 3).
	The tip is loose because of vibration.	Screw on the tip tightly (as showed in picture 3).
	The tip is damaged.	Change a new one.
The joint of the hand-piece and tail has water leakage.	“O” Shape water-proof rubber circle is broken.	Replace the “O” shape water-proof rubber circle.

If the problem still can't be solved, please contact with local dealer or manufacturer.

## 4.2 Notes

4.2.1 [Note 1] Adjust the water control switch according to the direction shown can control the water.

4.2.2 [Note 2] Clean the water pipe with the multi-function syringe of the dental unit (as showed in picture 4):



Picture 4

- ① Cut the water pipe at a distance of 10cm to 20cm from the water entrance.
- ② Turn on the electricity and get through the electricity .
- ③ Connect the multi-function syringe of dental unit to water pipe.
- ④ Disassemble the tip.
- ⑤ Step on the foot switch and let the machine work.
- ⑥ Turn on the switch of the multi-function syringe, press the water into the machine and the impurity blocked in the water pipe can be eliminated.

4.2.3[Note 3] If the scaling tip has been screwed on tightly and there is fine spray too, the following phenomena show that the scaling tip is damaged:

- ① The vibrating intensity and the water atomization degree become weak obviously.
- ② During treatment, it produces the sound like "buzz" from the scaling tip.

## 5 Precautions



- 5.1 Notice when using equipment
  - 5.1.1 Keep the scaler clean.
  - 5.1.2 The handpiece, scaling tip and torque wrench must be sterilized before each treatment.
  - 5.1.3 Don't screw or unscrew the scaling tip when stepping on the foot switch.
  - 5.1.4 The scaling tip must be fastened and there must be fine spray or drip coming from the tip when operating.
  - 5.1.5 Change a new one when the tip is damaged or worn excessively.
  - 5.1.6 Don't twist the tip or rub it.
  - 5.1.7 Please use purity water source and be sure not use normal brine instead of purity water source.
  - 5.1.8 If use the water source without hydraulic pressure, the water surface should be one meter higher than the head of the patient.
  - 5.1.9 Don't pull the cable forcibly in case of the cable attaint.
  - 5.1.10 Don't knock or rub the handpiece.
  - 5.1.11 After operating, turn off power (turn the power switch to off), then pull out the plug.
  - 5.1.12 We are only responsible for the safety on the following conditions:
    - I The maintenance, repairment and modification are made by the manufacturer or the authorized dealer.
    - II The changed components are original of "P5" and operated according to instruction manual.
  - 5.1.13 Some rough, rust and broken inside thread of scaling tips made by other manufacturer or other kind of inside thread on the match use of outside thread of handpiece can easily damage the scaler and make it beyond repair.

## 5.2 Contraindication

5.2.1 The hemophilia disease patient is not allowed to use this equipment.

5.2.2 The patients or doctors with heart pacemaker are forbidden to use this equipment.

5.2.3 The heart disease patient, pregnant woman and children should be cautious to use the equipment.

## 5.3 Storage and maintenance

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

5.3.2 Don't store the machine together with the articles that are combustible, poisonous, caustic, and explosive.

5.3.3 This equipment should be stored in a room on below conditions:

a) relative humidity :  $\leq 80\%$  ,

b) atmospheric pressure : 50kPa to 106kPa;

c) the temperature :  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ ;

5.3.4 If not use for a long time, please make the machine get through the electricity and water once per month for five to ten minutes.

## 5.4 Transportation

5.4.1 Excessive impact and shake should be prevented in transportation. Lay it carefully and lightly and don't invert it.

5.4.2 Don't put it together with dangerous goods during transportation.








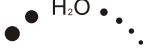



5.4.3 Avoid solarization and getting wet in rain and snow during transportation.

## 6 After-service

6.1 We offer 15 months free repair to the equipment based on warranty card from the date when it is sold.

6.2 The repair of the equipment should be carried out by our professional technician. Irretrievable damage caused by the nonprofessional technician, and damage accidentally or deliberately caused by operators, are out of the range of warranty.

## 7 Symbol instruction

	Trademark		Caution, consult accompanying documents
	Class II equipment		Use indoor only
	Type BF applied part		24V AC input
	Alternating current		Water control Switch
	Foot switch		Water entrance 0.01MPa-0.5MPa
IPX0	Ordinary equipment	IPX1	Drop-proof
	Autoclavable		

## 8 Environmental Protection

8.1 You can deal with it based on the local law.

8.2 We reserve the right to change the design of the equipment, the technique, fittings, the instruction manual and the content of the original packing list at any time without notice. If there are some differences between picture and real equipment, take the real equipment as the norm.



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Let's make things better

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