

## Portable Dental Unit User Manual

# DENT-P15E



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## **1. Preface**

: The user manual of Portable Dental Unit includes the following contents

Product Introduction, User instruction, Working principles of main structures and

. adjustment methods, maintenance and troubleshooting, appendix and etc

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## **2. Product Introduction**

### **2.1 Brief Introduction**

Thank you so much for choosing the portable dental therapeutic apparatus produced by our company. It is a multi-purpose, energy-saving, mechatronics product carefully developed by our company in combination with dental clinical experiences. The utility model has the advantages of small size, easy to carry, beautiful features, electricity-saving, simple maintenance, safety and durability. It is mainly used in oral health treatment in clinics and hospitals.

The product is built with an oil-free air compressor to provide a stable and clean gas source for 3way syringe and electric motor. The gas flows from the air compressor to the solenoid valve. With the foot pedal switch controlling the closing of the solenoid valve to achieve the purpose of controlling the electric motor and ultrasonic scaler. The clear water bottle adjusts the air pressure from the air compressor by means of the pressure-reducing valve, to provide the three-way syringe, electric motor and ultrasonic scaler with the water source. The built-in transformer provides a stable and safe low-voltage power supply for electric motor and air compressor. The suction system adopts the internationally advanced fully closed internal circulation mode to supply you a continuous and strong suction. The product are portable, easy to operate and maintain, and are very popular among dentists.

### **2.2 Declaration**

To ensure that you can better use this product after purchasing, we hereby declare:

2.2.1 Please use clean water or install water filtration device in order to ensure the normal use and the extension of the lifespan of the product.

2.2.2 Please turn off the water and air valves and cut off the power supply to avoid accidents after use.

2.2.3 Please disinfect and sterilize the product before using as the recommended way.

2.2.4 Please do check whether all the main parts and fittings are in conformity with the normal conditions of use before using this product.

2.2.5 Please read the instructions carefully before using and follow the instructions to operate.

2.2.6 Attention! Please stop using this product once happening the structural damage or abnormal use (such as the deformation of the impact, etc.), otherwise there is a possibility of danger.

2.2.7 This product is only applicable to dental treatment, and can not be used for other purposes, otherwise there is a possibility of danger.

2.2.8 The application of this product must comply with the requirements of local laws and regulations and Regulatory Authority.

2.2.9 The manufacturer reserves the right to change the size and specifications without further explanation.

2.2.10 The contents of the instructions have been carefully checked, but we cannot guarantee that the error will never occur; therefore, we cannot take any responsibility for any direct or indirect loss and injury caused by this instruction. It is suggested that when any abnormal conditions are encountered during the process of using according to the instructions, such as excessive vibration, high temperature, abnormal sound and etc., you should stop using it immediately and contact the

distributor or customer services of our company.

## 2.3 Technical Data

### 2.3.1 Power parameters

Model	Power	Voltage	Unit Dimension /Packing size	N.W/G.W
DENT-P15E	160W	AC100-240V 50 Hz/ 60Hz	43*30*57CM/49.5*37*70CM	15.2KG/23.8KG

### 2.3.2 Air supply parameters

The air supply is from built in air compressor with clean and dry air. (air pressure : 0.5mpa)

### 2.3.3 Water supply parameters

It's equipped with a 1000 ML water container for water supply. Please replenish water in time when water is insufficient.

## 2.4 Storage and Protection

2.4.1 This product should be stored in the non-corrosive air and good ventilation room.

2.4.2 During storage and use of this product, attention should be paid to waterproof, moisture-proof, and shockproof. Do not use it in wet, dark, rain, or uneven places. Do not use it in places where flammable and explosive liquids and gases, and dust are stored.

2.4.3 When using this product, please do not allow the machine itself to touch grounded objects (such as pipes, radiators, and other metal products) to prevent electric shock.

2.4.4 Do not let children and other unrelated persons approach this product to avoid accidents.

2.4.5 Please use this product in accordance with the calibrated voltage and frequency on the dental unit.

2.4.6 Do not pull the cable directly to pull out the plug, keep the cable away from heat source and oil, avoid contacting with sharp objects.

2.4.7 Please follow the instructions to properly maintain the machine.

2.4.8 Warning: The use of accessories provided by third-party manufacturers may cause product damage and personal injury.

2.4.9 It should be noted that the supply voltage matches the voltage on the nameplate of the dental unit. If the power supply voltage is higher than the applicable voltage of the dental unit, it may cause personal accidents and damage the dental unit. If the power supply voltage is lower than the applicable voltage of the unit, it may cause poor start-up and even damage the motor.

2.4.10 The packaging materials used in this product are all considered for the environment and can

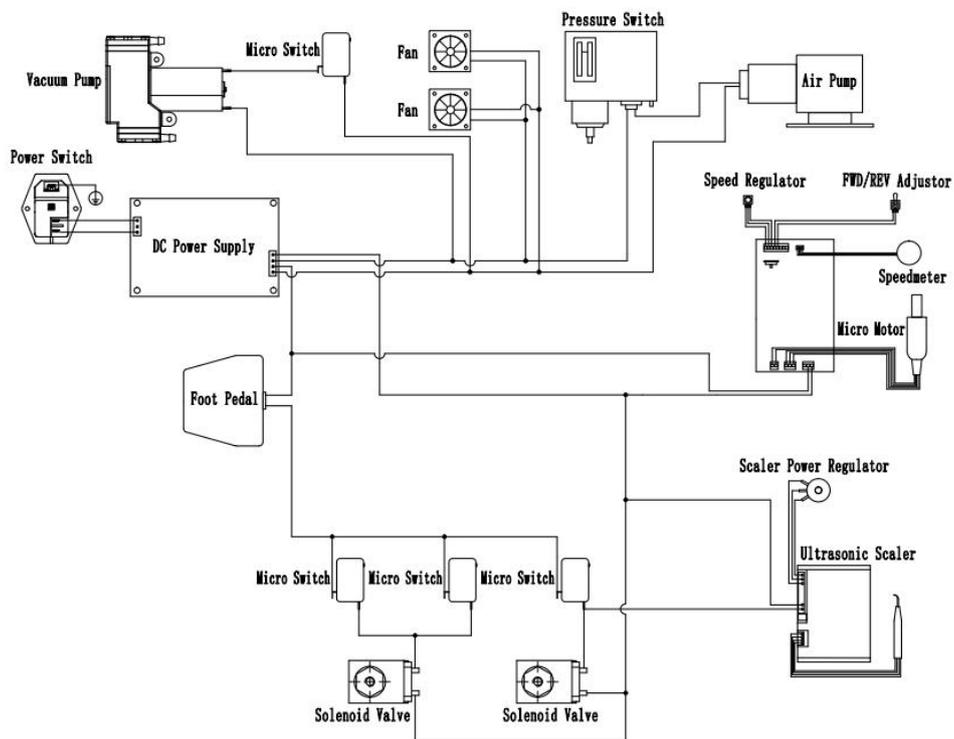
be recycled 100%.

2.4.11 After collecting raw materials and wastes for packaging, please sort them out and send them to designated recycling points.

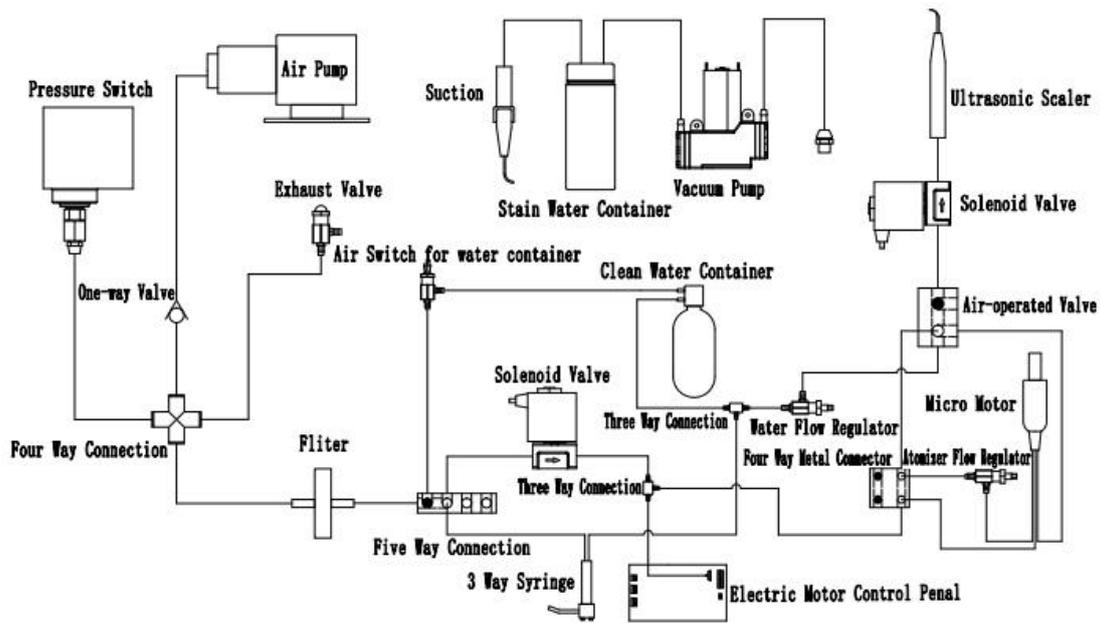
2.4.12 This product does not include sewage treatment devices. Waste generated during the using process shall be handled by the user in a suitable place such as a clinic or hospital, so that it can be cleaned in a timely manner.

## 2.5 Structural diagram and Main parts

### 2.5.1 Circuit diagram



## 2.5.2 Control Chart



## 2.5.3 Main parts



1 Suction	2 Electric motor	3 LCD display
4 Speed regulator	5 FWD/REV Switch	6 Stain water container
7 Atmoizing gas regulator	8 Ultrasonic scaler	9 3 way syringe
10 Air switch	11 Water regulator	12 Scaler power regulator
13 Clean water container	14 Instrument Holder	15 Foot pedal
16 Power Switch	17 Power outlet	18 Air release switch

## 2.6. Working Condition and requirement

### 2.6.1 Working Condition

Working Condition	Suitable or not
Plain and steady place	√
Direct sunlight or nearby heating device	×
Poor ventilation	×
Place nearby oven , water , oil or fumes	×
Place where vent was blocked	×
Bumped place	×
Shaking place	×
Dust or moist place	×
Place of high temperature	×

### 2.6.2. Working requirement to temperature

Working temperature : 5-40°C

Rrelative humidity :≤80%

## 3. Instructions for use

### 3.1 Preparation before use

3.1.1 Remove the wooden box packaging, carefully save the sealing screw for packing use;

3.1.2 Take out the shockproof foam cotton, carefully save it for future use;

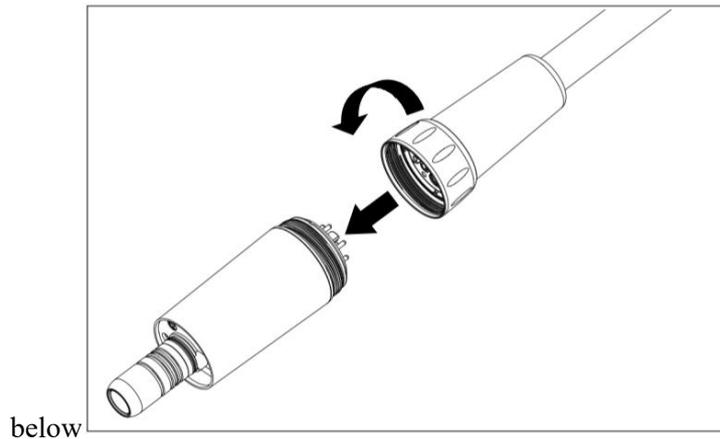
3.1.3 Take out hand-held body handles together with the machine protection bag and prevent tilting of the wooden box;

3.1.4 Before opening the door of the machine, shake it around to confirm that there is no abnormal noise before opening the door;

3.1.5 Take out the power cable and insert it into the rocker switch holder;

3.1.6 Take out the foot pedal switch, connect the terminal;

3.1.7 Align the pins on the motor with the holes on the connecting cable wire as shown in the picture until the two match; tighten the two together to lock as shown



3.1.8 Unscrew the water bottle counterclockwise and add 2 / 3 of purified water or tap water for standby;

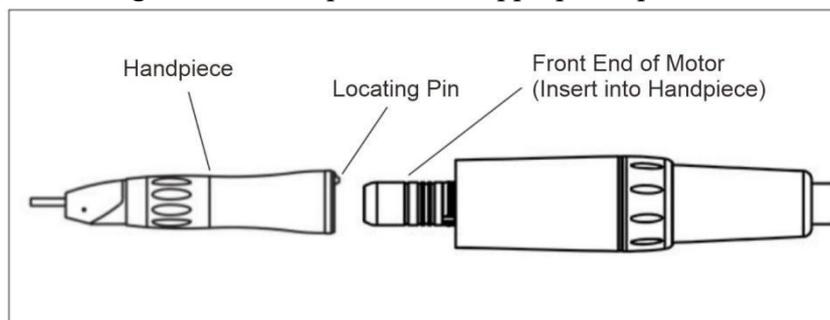
3.1.9 Place all tools in the rack for standby according to the order indicated in the instruction manual.

### 3.2 Operation Instruction

3.2.1 Please open the air/water switch before operation.

3.2.2 Connect the electric motor and handpiece as shown below:

Please adjust the water and gas of the handpiece to the appropriate position to meet your needs.



**Caution: The motor and accessories must be cleaned and disinfected after the first and each use. Please refer to the maintenance instructions for details.**

3.2.3 Before using the saliva suction, please turn on the saliva suction switch. Please note that the water regulating valve can adjust the water of the handpiece and the scaler at the same time, and adjust the water mist and working frequency of the scaler according to your needs.

3.2.4 Use the 3-way syringe to spray water, air or atomization. Please ensure power is turned off after each treatment. Empty clean water container and clean waste container.

3.2.5 Use 3-way syringe or turn on the suction switch to drain the air and press the drain valve to drain the remaining air and water.

3.2.6 Remove the handpieces, scaler and sterilize them for next use. Place all instruments on the holder inside the cover.

3.2.7 Close the unit and put in safe place.

## 4 Working Principle and application of main structure

4.1 Electric motor

4.1.1 Connect with the suitable dental handpiece.

4.1.2 Plug in the unit and take off the handle of motor from the instrument holder.

4.1.3 Regulate the speed, water and atomizing gas of the electric motor.

4.1.4 Press the foot pedal, handpiece begins to work; The handpiece will stop working when you release the foot pedal.

4.1.5 Please take down the electric motor handle and handpiece for disinfection after each treatment.

**Caution: The speed of electric motor is displayed on the screen; Electric motor speed multiplied by dental handpiece increase/decrease ratio to get the actual working speed of the dental handpiece.**

4.2 Dental handpiece (\* optional accessory)

This unit can work with 1:5, 1:4.2, 1:1, 16:1 etc dental handpieces, for any needs, please feel free to inquire our sales representatives.

4.3 3 way syringe

4.3.1 Press on the circular nut, insert the tip, then release the nut and lock the tip.

4.3.2 To get the water, gas and atomizing gas by pressing the relative button on it.

4.4 Suction

Pick up the suction, adjust the suction control to control the power of suction. Discharge the liquid in saliva container in time when it reaches 2/3 of the bottle, (take off the bottle counterclockwise).

**Caution: After daily use, suck a cup of clean water to drain the accumulated water in the tube and clean the stain water container.**

4.5 Ultrasonic scaler

4.5.1 Adjust the power of ultrasonic to maximum and water of it to minimum before using.

4.5.2 Select a suitable scaling tip as you need, screw it on the handpiece tightly by the torque wrench.

4.5.3 Start the cleaning function for tooth cleaning.

4.5.4 Press the foot pedal, the scaler begins to work with led light on handpiece lighten up; The scaler will stop working when you release the foot pedal.

4.5.5 The handpiece can be handled in the same gesture as a pen in hand.

4.5.6 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.

4.5.7 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.

4.5.8 Working frequency and water volume can be adjusted according to the needs of treatment.

4.5.9 After treatment, let the scaler working 30s with water to wash the handle and tips, then take down the handle and tip for disinfection.

4.6 Water Container

Distilled water in a clean water bottle is used for high and low speed hand-pieces , 3-way syringe and ultrasonic scaler. Remove the bottle counterclockwise, add distilled water, and tighten the container

to avoid air leakage.

**Caution: Please must turn off the air switch before filling in water.**

#### 4.7 Saliva Container

The saliva bottle must be cleaned after daily use. Turn it down counterclockwise and swash with clean water. Then disinfect with 84 disinfectant. And tighten the container clockwise.

## 5、 Maintenance and troubleshooting

### 5.1 Maintenance

Caution: Since this machine is equipped with the oil-free compressor, in order to prolong its lifespan, we suggest to maintain carefully and regularly.

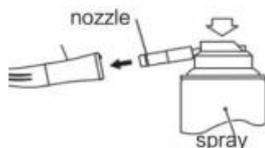
#### 5.1.1 Internal pipes

To ensure the unit work normally, please drain the condensed water accumulated in the pipes regularly (usually twice a week). The drain valve is a push-type valve located on the rear lower side of the case. Press that button to drain the water.

#### 5.1.2 Dental handpiece (\*Optional accessory)

##### 5.1.21 Cleaning and lubricating

Insert the E-TYPE oiling nozzle into handpiece and spray for 2-3s to clean and lubricating the handpiece.



##### 5.1.22 Sterilization

After cleaning and lubrication, please sterilize the dental handpiece in autoclave by steps below:

- Pack the handpiece with sterilization pouch.
- Sterilize the handpiece in autoclave for 12minutes under 135°C

#### 5.1.3 Electric motor

The motor and accessories must be cleaned and sterilized after the first time and each time use.

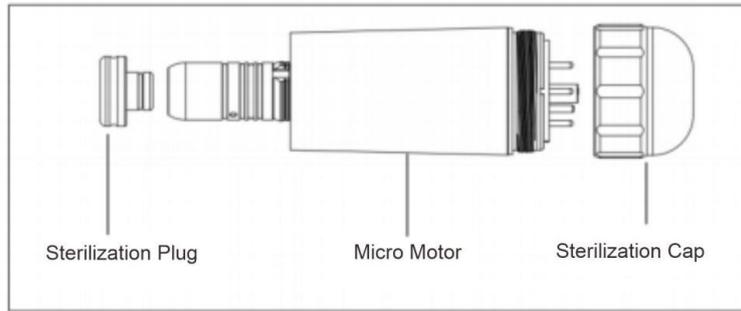
Autoclave is suggested for the motor sterilization after the first time and each time use. Steps as below:

5.1.3.1 Cut off the power supply.

5.1.3.2 Disconnect the handpiece and motor connecting cable.

5.1.3.3 Clean the surface of motor with soft brush (no metal brush) and wipe the surface with cotton dipped alcohol.

5.1.3.4 Seal the motor with sterilization plug and cap as shown on pic below:



5.1.3.5 Place the motor in sterilization pouch and seal the pouch.

5.1.3.6 Sterilize in autoclave for 15minutes at  $135^{\circ}\text{C} \pm 2^{\circ}\text{C}$ .

5.1.3.7 Keep the motor in the sterilization pouch before next use.

**Caution: Please do not lubricate the motor.**

**Motor, Sterilization plug and Sterilization cap are all sterilizable.**

**Cleaning and Sterilization should be proceed before first time use and after every time use.**

#### 5.1.4 3-way Syringe Sterilization

Take the tips down and make it sterilized.

#### 5.1.5 Ultrasonic Scaler Sterilization

The handle of the scaler should be cleaned on the surface by wet cloth soaked with disinfectant, and the head of the scaler should be taken down and sterilized by specified tools.

**Caution: After each patient is treated, all treatment equipment used in the mouth must be sterilized before it can be reused.**

### 5.2 Common Troubleshooting

Item no.	Issue	Reason	Checking	Solution
1	Compressor can not be started	The power is not switched on	Check if the power supply is connected correctly	Connect the power supply correctly
		The wire to the power supply has fallen off or an electronic component is loose.	Check the patch board and the electric connection of the compressor	Connect the wire according to circuit diagram
2	The air compressor keeps working and can not be stopped.	Lots of leakage in the tube.	Watch and listen to the flow, or check it with suds.	Avoid leaking air
3	Electric leakage on	The earth is not connected properly.	Check the shell with the electric pen.	Connect the earth wire properly.

	outer casing	The unit has been affected with damp.	<5MΩ Check with multimeter. Insulating resistance: <5MΩ	Use the device until it is dry.
5	Hanpiece is not spraying water but rotates	No water in container or water regulator is not open	Check water inside the container , Check water regulator	Fill it up with the water. Adjust water regulator
		Double valve is blocked	Check if 3-way syringe spray water	Adjust or clean double valve
6	Handpiece leak water on free stage	Double valve spring is broken	Check double valve spring	Replace double valve spring
7	Air and water leakage on water and air adjustor	O-ring is damaged.	Remove and check the valve core.	Replace O ring.
		Thread connector is loose	Check if there is leakage in the thread connector	Tighten the thread connector
8	No water on scaler	Air/water switch is closed No water in container The regular for water is at the lowest point Scaler valve is not working	Check Air/water switch Check water in container Check water regulator Check valve is working or not	Open Air/water switch Fill in more water Open water regulator Check electricity or replace valve
9	Suction is not working	Switch on suction tip is closed Suction on/off switch is off Saliva container is not screwed up or leak air Vacuum generator is not working	Check switch on suction tip Check if saliva container is screwed up Check vacuum generator	Pull the suction switch. Screw up saliva container Replace the vacuum generator
10	“EO” shown on the speedometer	Electric motor is disconnected	Check whether the electric motor is connected or connected correctly	Connect the electric motor

11	“E1” shown on the speedometer	Over-voltage	Internal DC power supply failure, check the internal DC power supply connection, turn on and off the machine and restart. If the problem cannot be solved, the DC power supply may be damaged.	Change DC power supply
12	“E2” shown on the speedometer	Under-voltage	Internal DC power supply failure, check the internal DC power supply connection, turn on and off the machine and restart. If the problem cannot be solved, the DC power supply may be damaged.	Change the DC power supply
13	“E3” shown on the speedometer	Electric motor is overloaded	In the unused state, after confirming that the machine head is connected to the mobile phone, the machine head can rotate normally without pin jamming. If it occurs during use, it may be due to system protection due to excessive workload.	If the burs is not blocked, please change the dental handpiece. Step on the footpedal or switch off and restart the unit.

## 6. Standard Configuration and Packing List

### 6.1 Standard Configuration

Electric motor handpiece hose	1 piece
Electric motor	1 piece
3-way syringes	1 piece
Suction	1 piece

Clean water container	1 piece
Saliva container	1 piece
Oil free compressor	1 set
LED Woodpecker Ultrasonic Scaler	1 set

## 6.2 Packing List

1. HR-DP15 EPOWER main unit	1set
2. Power Cord	1 piece
3. User Manual	1 piece
4. Scaler Accessories (5 tips , 1 wrench , 2 pcs fuse )	1 pack
5. Electric motor accessory	1 set
6. Unit Fuse	2 pieces

## 7. Appendix

### 7.1 Symbols Description

Symbols	Description	Symbols	Description	Symbols	Description
	Double insulation Class ii equipment		caution		Series Number
	Manufacturer		CE Mark		European Represent ative
	Up		Handle with care		Prevent from blazing sunlight
	Keep upright		Moisturepr oof		Please stack no more than 2 layers
	Keep away from fire		Free smoking		User Instruction

## **. Quality policy and After-sale service statement 7.2**

Each machine will be passed through rigorous quality assurance procedures before shipment, but improper usage or modify the products with unqualified spare parts may shorten lifespan to the machine or cause danger to user

Therefore we recommend you to contact us directly or our authorized distributors if you have any questions to the product.

## **7.3 Manufacturer Information**

**Hagavish st. Israel 58817 Tel: 972 3 5595252, Fax: 972 3 5594529 ,3**

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