OPERATION & SERVICE MANUAL

PORTABLE DENTAL UNIT

DU Series

CE 0123

Jiangsu Dynamic Medical Technology Co.,Ltd.

Note: Before operating or maintenance the unit, please read the manual carefully. This manual is just for guidance, and our company has the right to improve the design.

This manual will guide you to operate the light precisely. Please read all accompanying documents before the first use!

Disclaimer

This manual doesn't refer to any description of Dynamic products' specifications and accessories. If you have any questions about these two aspects, please read the according agreement and packing list, or contact the agents directly.

We have made great efforts to write this manual correctly and completely. But because of the continuous advance for technology and the amendments for relevant laws, we may make some changes to products and manuals. We reserve the right to change without any other previous declaration. We promise to improve our products and service continuously. If you find inconformity between manual and product, want to know latest information, or have any questions, please visit our website!

Limited warranty

For the device with warranty document, we will provide after-sale service referring to the warranty document only.

For the device without warranty document, we will provide after-sale service referring to the agreement. It means this purchaser don't have the right to enjoy our after-sale service. So, if you want to buy such kind product, you should require the seller to promise you after-sale service.

This product could be sold in the countries and regions where it meets laws only.

In the maximum limit of law permitting, in the following conditions, we assume no responsibility:

1. The third party requires you to compensation.
2. Incidental or indirect injury and economic loss.
3. Any injury and economic loss because you add other equipments to this product personally.
4. Any injury and economic loss because you use the product in conditions not referred in manual, or you don't operate the product according to manual.
5. Any injury and economic loss because of force majeure factors.

You could call our after sale service number: +86-021-51697955

Note: Maybe this number will be changed due to communication network or some other objective factors, and we will give no further notice.

Copyright

Marks

Notice: Risk of losing accessories and documents

Caution: Risk of injury or malfunction

Figures

see instructionS for use

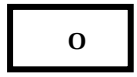
Ground Protective

Serial Number

Producing Date

Electron Garbage Bin

ON



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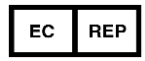
Manufacturer



EU Representative Information

6. Version information

Operation Manual No.DL-DU-CE-1709-01

7. Model

DU852□、DU893□、DU892□、DU895□、DU895A□、DU896□、DU810□、DU811□
DU812□、DU800□、DU752□

Content

1. Brief introduction

Thank you for purchasing our DU portable dental units. It is our company's well-developed multi-purpose mechanical and electrical integration of energy-saving product with small, mobile, good appearance, less power consumption, free maintenance, safe and durable etc. It is mainly used for clinics and hospitals in the treatment of oral health. In order to be convenient for you to operate the unit, please read the manual carefully.

1.1 Contents of the manual

The operation manual includes brief introduction, installation and test, maintenance and so on. You can get help referring to the contents**.**

1.2 Performance and structure

DU portable dental units include 3-way syringe, handpiece, foot control, clean bottle, drain bottle, built-in oil-free air compressor, air tank, and drawbar.

1.3 Main application

Mainly applied in dental clinics and hospitals, as one of the main units for dental hygiene and treatment.

1.4 Safety information

1.4.1 Electric safety

- To make sure that the plug of this product is three-phase with good grounding.
- Before connect the power plug, please ensure the power voltage consistent with the named voltage which this product required.
- To avoid unsteady voltage, please do not use the power socket together with other electric equipment.
- Before maintain or repair the product, please unplug that electric wire firstly.
- Please check the electric wire and plug regularly to avoid the damage or extrusions.

1.4.2 Cleaning

Please keep the environment around the product clean. Unplug that electric wire before cleaning the machine. The process of cleaning as follows: firstly wipe the outer surface with a soft cloth stained with neutral detergent, and then use a soft cloth to clean the machine again.

Warning: **Do not use liquid or detergent containing flammable substances.**

1.4.3 Other safety information

When using the product, please strictly operate the machine in according to the following rules:

1) Disinfection and sterilization

Before use, disinfection and sterilization are necessary to avoid the infection caused by bacterium and virus.

2) In treatment, it is necessary for the patient to breathe only by nose to avoid the risk of swallowing the cracked equipments.

3) The handpieces should be operated with distilled water simultaneously. If operate the handpieces without distilled water, the handpiece will overheat and cause damage to the teeth.

4) Please note that the power plug is designed as the safety device, not power switch. It is

necessary to ensure the power plug can be unplugged from the socket without extrusions.

Warning: Correct grounding is necessary to avoid the risk of electric shock.

5) Only skilled staff through training can operate the equipment. Undue operation may cause severe injury.

6) Equipment cannot be used in flammable mixture environment.

7) Equipment cannot be used in anesthetic and air, oxygen, nitrogen mixture environment.

8) Don't put the equipment together with oxygen cylinder.

9) Please do not operate the equipment or replace the accessories when the following situations occur:

● Damage of the power plug

● Equipment cannot work normally

● Breakdown of the equipment

● Water inlet of the equipment

● Loud or shrill noise, overheating outlet air or foul smells during operation.

When above situations occur, please contact with the manufacturer or local agent. In order to be convenient for us to offer after sale service, please offer drawing of electrical circuit, air and water connection diagram, packing list and other useful information when necessary.

10) Please use original or qualified disinfector.

11) Turn off the power when the operator left.

12) Dispose of waste liquid and waste solid according to the local health regulations.

13) Do not use and store the equipment outside the specified environment.

14) Keep accessories from dropping to avoid damages.

15) Keep the electric wire from loosing in the process of treatment.

16) Please use accessories from original manufacturer.

17) Keep the equipment in a solid and horizontal level.

1.5 Periodic safety inspections

The following projects should be inspected at least once a year by the trained and skilled person:

Check the equipment and the functional status of the machinery in the attachment.

Check whether the mark of the related safety is clean or not

Check whether the blown fuse accords with the current rating fuse and the characteristic

Check whether the performance of the equipment accords with the description in the manual.

Testing whether the ground resistance is less than the required resistance described in the IEC60601-1: 0.1ohm.

Testing whether the earth leakage current is less than the required resistance described in the IEC60601-1: normal Condition: 500uA, single fault condition 1000uA.

Testing whether the Shell leakage current is less than the required electric current described in the IEC60601-1: normal Condition: 100uA, single fault condition: 500 uA.

Testing whether the patient current leakage is less than the required electric current described in the IEC60601-1: for the alternating current: 0.5Ma, for the continuous current: 10 uA.

Testing whether the patient leakage current is less than the required current described in the IEC60601-1 in the single fault condition: for the alternating current: 0.5Ma, for the continuous current: 50uA.

Testing whether the auxiliary leakage current is less than required current described in the IEC60601-1:

The alternating current in the normal condition: 0.1Ma, for the continuous current 10uA;

The alternating current in the single fault condition: 0.5Ma, for the continuous current is 50 uA.

Write down all the test data on the operational diary, if the above test is failed or the equipments can not work normally, then you should maintain the equipment.

1.6 The requirements of external components

1.6.1 All external parts must be certified by CE, and also you need to check technical parameters related to spare parts, sketch map, technical manuals and instructions, production qualification test report and other contents.

1.6.2 Check whether the parts will accord with the requirements of the company before Installation the parts.

1.6.3 The installation parts should be operated by the trained person.

1.7 All models

DU852, DU893, DU892, DU895, DU895A, DU896, DU810, DU811, DU812, DU800, DU752

2. Technical specifications

2.1 Power parameter

Figure 1

Model	Voltage/Frequency	Power	Rated current	Inflatable time	Specification	Net Weight
DU752	～230V 50 Hz	750VA	≤4A	≤35 S	615×500×790 mm	30Kg
DU852	～230V 50 Hz	750VA	≤4A	≤10 S	450×310×680 mm	26Kg
DU892	～230V 50 Hz	550VA	≤3.2A	≤35 S	450×310×680 mm	26Kg
DU893	～230V 50 Hz	550VA	≤3.2A	≤35 S	450×310×680 mm	28Kg
DU895	～230V 50 Hz	550VA	≤3.2A	≤35 S	420×300×480mm	26Kg
DU895A	～230V 50 Hz	550VA	≤3.2A	≤35 S	420×340×570 mm	31Kg
DU896	～230V 50 Hz	550VA	≤3.2A	≤10 S	495×330×450 mm	24Kg
DU810	/	/	\	\	970×390×290 mm	18 Kg
DU811	/	/	\	\	610×580×850 mm	26Kg
DU812	/	/	≤0.3A	\	610×580×850 mm	26Kg
DU800	/	/	\	\	450×310×680 mm	12Kg

2.2 Performance and accessories

Figure 2

No.	Model	Performance and Accessories									
		Tank	Motor	Unit	H.S.	L.S.	Instrument	3-way	Saliva	LED	Scaler

					Handpiece Tube		Handpiece Tube	tray	Syringe	Ejector	Curing Light	
					1pc	2pcs						
1.	DU 752	●	●	●	●		●		●	●	○	○
2.	DU 852	●	●	●	●		●		●	●	●	●
3.	DU 892	●	●	●	●		●		●	●		
4.	DU 893	●	●	●	●		●		●	●	●	●
5.	DU 895	●	●	●	●		●		●	●		
6.	DU895A	●	●	●	●		●		●	●	○	
7.	DU 896	●	●	●		●	●		●	●		
8.	DU 810			●	●		●	●	●	●		
9.	DU 811			●		●	●	●	●	●	○	○
10.	DU 812			●	●		●	●	●	●	●	●
11.	DU 800			●	●		●		●	●		
Note: "●" Basic Accessory, "○" Optional Accessory												

Warning: Please operate the unit strictly under the named supply voltage, because the unsteady current can cause injuries to the unit.

Please install power voltage regulator when supply voltage is unsteady, and the rated power is no less than 1000VA.

2.2.1 Air supply parameter

The air supplied by the built-in compressor is clean and dry (Air pressure: >0.55MPa, air flow: >50L / min). If the compressed air is wet, press the drain valve to drain off the water in tank timely.

2.2.2 Water supply parameter

The water offered for the handpiece and other parts is directly from clean bottle; please refill the bottle with distilled water timely.

2.3 Product classification

2.3.1 Classification of electric shock protection: Type I equipment.

2.3.2 Classification of electric shock guarding: Type B equipment.

2.3.3 Classification of waterproof: Normal equipment.

2.4 Conditions of transportation, storage and application

2.4.1 Transportation and storage

The machine should be transported and stored in following condition:

Temperature: -10℃~+50℃

Range of relative humidity: ≤90％

Range of atmospheric pressure: 50Kpa ～106Kpa

2.4.2 Working condition

Temperature: 5～40℃

Relative humidity: ≤80％

Atmospheric pressure: 86Kpa ～106Kpa

The machine should not be used in the environment with a mixture of flammable anesthetic,

oxygen and nitrogen.

2.5 Electromagnetic Compatibility

The machine pass the electromagnetic compatibility test of IEC60601-1-2, should you have any questions, please contact our service department, thank you!

Electromagnetic Emission Standards and Our Announcement		
DU series dental unit should be used in following electromagnetic environment, and the use of this product should ensure to use under suitable environment.		
Electromagnetic Emission Test	Standards	Electromagnetic Environment Standards
Radiation Electromagnetic Disturbance	CISPR 11 I FORM A CLASS	Electromagnetic emission of DU series dental unit can only satisfy its inherent functions, so its wireless radiation level is so low, that could not effect the contiguous electronic equipment.
Power Disturbance Voltage	CISPR 11 I FORM A CLASS	
Harmonic Emission	IEC 61000-3-2	DU series dental unit can used by all companies and institutes, and could not connect with household or public low voltage power system.
Voltage Fluctuation/Flash	IEC 61000-3-3	

Electromagnetic Emission Standards and Our Announcement			
DU series dental unit should be used in following electromagnetic environment, and the use of this product should ensure to use under suitable environment.			
Electromagnetic Emission Test	IEC 60601 TEST VALUE	Standards	Electromagnetic Environment Standards
Electrostatic Discharge (ESD) IEC 61000-4-2	±6 kV Touch ±8 kV Air	±6 kV Touch ±8 kV Air	The materials of floor should be wood, concrete and ceramic tile. If the floor is synthetic material, relative humidity no less than 30％.
EFT IEC 61000-4-4	±2kV Power Supply Line	±2kV Power Supply Line	The quality of power supply is used in special commerce or hospital.
Surge (Impact) IEC 61000-4-5	±1 kV Line to Line Mode ±2 kV Line to Earth Mode	±1 kV Line to Line Mode ±2 kV Line to Earth Mode	The quality of power supply is used in special commerce or hospital.

Voltage Sag And Short Supply Interruption Voltage Change IEC 61000-4-11	<5% UT (>95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	<5% UT (>95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	The quality of power supply is used in special commerce or hospital. When DU series portable dental units need to continuous operation when grid interrupts, please use uninterruptable power output.
Power Frequency Magnetic Fields IEC 61000-4-8	3A/m	3A/m	/
Note: UT is alternating voltage before testing.			

Electromagnetic Emission Standards and Our Announcement			
DU series dental unit should be used in following electromagnetic environment, and the use of this product should ensure to use under suitable environment.			
Protection Test	IEC 60601 TEST VALUE	Standards	Electromagnetic Environment Standards
Radio transmission IEC 61000-4-6 Radio radiation IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 Vrms 3 V/m	Portable or mobile radio communication equipment should stay away from DU series portable dental unit， including cables, also should leave more than the recommended separation distance calculated. Recommended separation distance $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$ $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$ 80 MHz 800 MHz $d = \left[\frac{7}{E_1}\right]\sqrt{P}$ 800 MHz 2.5 GHz P: is the fixed output power by radio equipment manufacturer, the unit is W. D: Recommend separation distance. Fixed radio transmitter, determined by electromagnetic measurements, A: Each frequency band must be less than the standard

			requirements. B: The equipment maybe interfered nearby the device with following symbols: 

Note: 1 Between 80 MHz and 800 MHz, higher frequency range applies.

2 This specification maybe do not suitable for all situations, because the propagation of electromagnetic waves can be effected by the absorption and reflection of buildings, objects and people.

A: The electromagnetic strength of fixed radio transmitter, such as radar station, cordless telephone and mobile radios, amateur radio, FM and AM radio and television, this can not be predicted in theory. The estimated of electromagnetic environment depends on the fixed radio transmitters, and electromagnetic measurement points should be considered. If the magnetic strength nearby the DU series is more than the above allowed value, then DU series portable dental unit should be observed to verify by the normal operation. In addition, when to re-install the DU series portable dental unit, the above information should you measured again.

B: Frequencies above 150kHz to 80 MHz, the electromagnetic intensity should be less than 3V/m.

Recommended separation distance between DU series portable dental unit and Portable or mobile radio communication equipment

DU series portable dental unit for radio interference to be controlled electromagnetic environment, the users of DU series portable dental unit should ensure the minimum distance between the DU portable dental unit and portable or mobile radio communication equipment according to the following recommended value, and take the maximum output power into account.

Communications equipment, the rated maximum output power(W)	Separate communication channels established in accordance with the distance (m)		
	150 kHz to 80MHz $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$	80 MHz to 800 MHz $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$	800 MHz to 2.5GHz $d = \left[\frac{7}{E_1}\right]\sqrt{P}$
0.01	0.117	0.117	0.233
0.1	0.369	0.369	0.738
1	1.167	1.167	2.333
10	3.689	3.689	7.379
100	11.667	11.667	23.333

Because the rated maximum output power of communications equipment do not mentioned above, the recommended separation distance d (meters) can be estimated according to same communication device. P is the maximum output power (in watts) according to the communications equipment manufacturers.

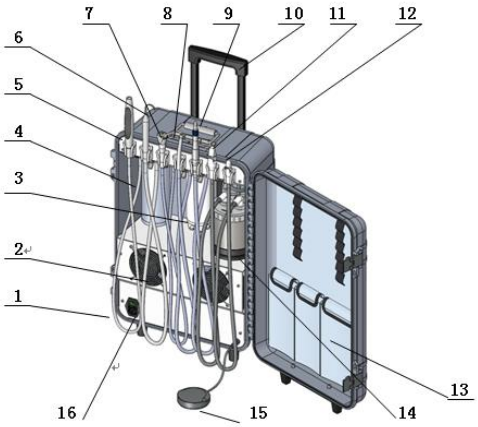
Note: 1. From 80 MHz to 800 MHz, separation distance is more accordance with the higher frequency.

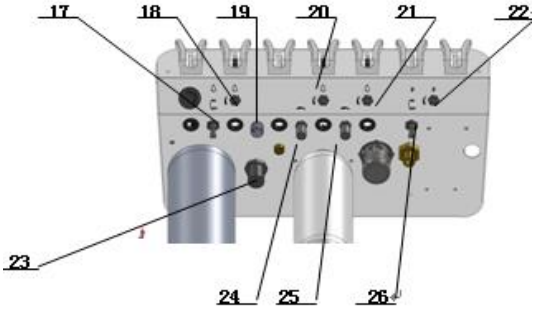
2. This specification do not apply to all situations. Because the propagation of electromagnetic waves by buildings, objects, people effects of absorption and reflection.

3. Product Structure and Installation

3.1 Structure

3.1.1 DU852 Structure



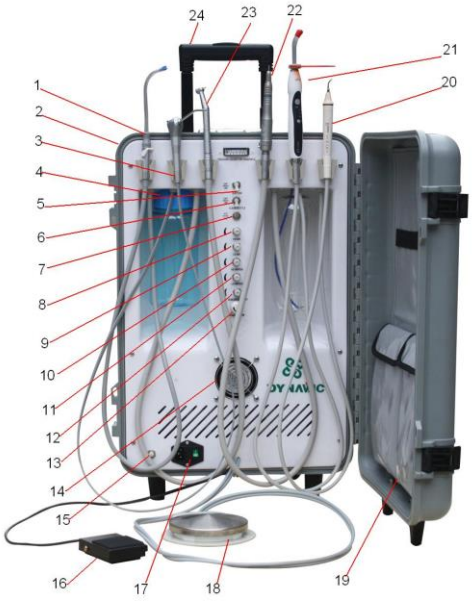


1.box	2.cooling fan	3. Clean Bottle
4.Air tank	5. LED Curing Light	6. Scaler
7. 3-way Syringe	8. High Speed Handpiece	9. Low Speed Handpiece
10. handle	11. high suction	12.saliva ejector
13.instrument bag	14.drain bottle	15. Foot Control
16. Power	17. Air Switch of Clean Bottle	18. Scaler Coolant
19. Scaler Power	20. Water Adjustor for High-speed Handpiece	21. Water Adjustor for Low-speed Handpiece
22. Saliva Ejector adjustment valve	23. adjustment valve	24. Air Adjustor for High-speed Handpiece
25. Air Adjustor for Low-speed Handpiece	26. Air Switch of Saliva Ejector	

3.1.2 DU892 Structure

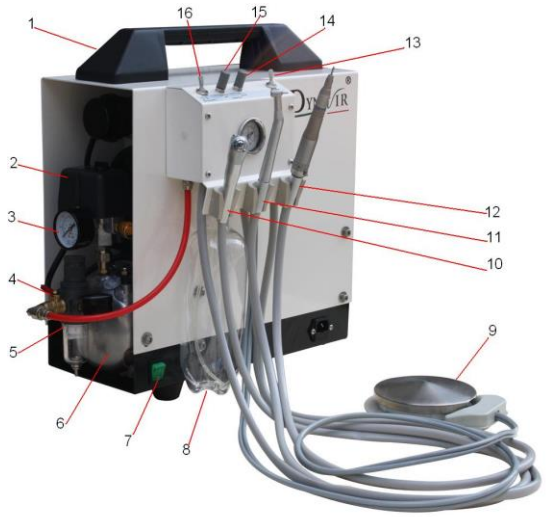
1. Saliva Ejector	8.High-speed/Low-speed Transferring Switch	15. Fan
2. Box	9. Air Adjustor for High-speed Handpiece	16. Power
3. 3-way Syringe	10. Air Adjustor for Low-speed Handpiece	17. Drain Valve
4. High Speed Handpiece	11. Water Adjustor for High-speed Handpiece	18. Foot Control
5. Low Speed Handpiece	12. Water Adjustor for Low-speed Handpiece	19. Instrument Bag
6. Air Switch of Saliva Ejector	13. Dirt Bottle	20. Pressure Gauge of Handpiece
7. Air Switch of Clean Bottle	14. Clean Bottle	21. Rod

3.1.3 DU893 Structure



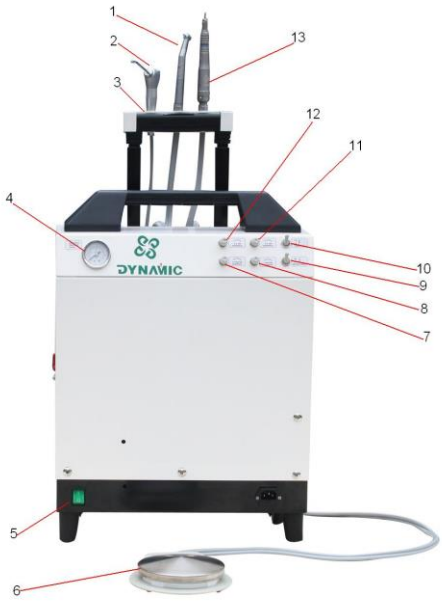
1. Saliva Ejector	9. Air Adjustor for Low-speed Handpiece	17.Power
2. Box	10. Water Adjustor for High-speed Handpiece	18. Foot Control
3. 3-way Syringe	11. Water Adjustor for Low-speed Handpiece	19. Instrument Bag
4. Dirt Bottle	12. Scaler Coolant	20.Scaler
5. Air Switch of Saliva Ejector	13. Scaler Power	21. LED Curing Light
6. Air Switch of Clean Bottle	14. Fan	22. Low Speed Handpiece
7. High-speed/Low-speed Transferring Switch	15. Drain Valve	23.High Speed Handpiece
8. Air Adjustor for High-speed Handpiece	16. Foot Control of Scaler	24. Rod

3.1.4 DU895 Structure



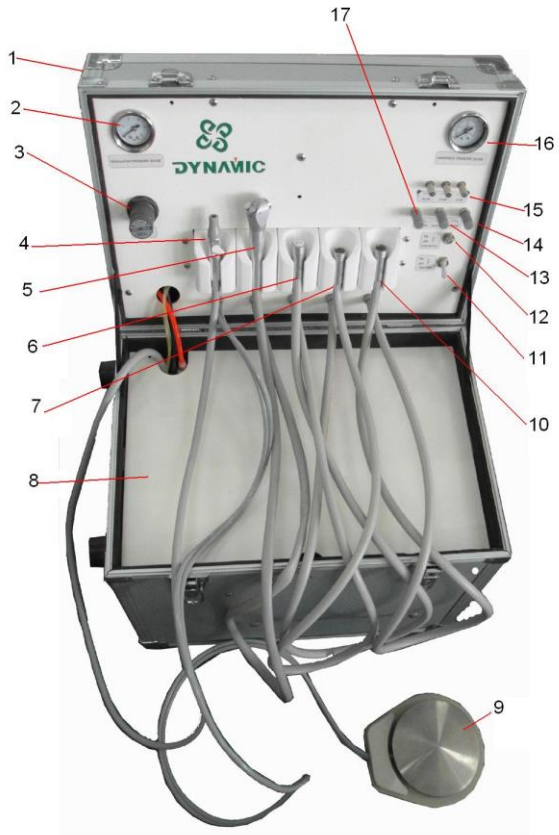
1. Handle	7. Power	13.High-speed/Low-speed Transferring Switch.
2. Pressure Switch	8. Clean Bottle	14. Water Adjustor for Handpieces
3. Tank Pressure Gauge	9. Foot Control	15. Air Adjustor for Handpieces
4. Quick Connector of Air Outlet	10. 3-way Syringe	16. Air Switch of Clean Bottle
5. Air Regulator & Filter	11.High Speed Handpiece	
6. Tank	12. Low Speed Handpiece	

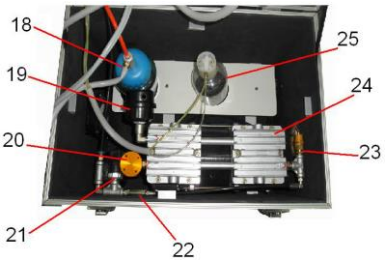
3.1.5 DU895A Structure



1. High Speed Handpiece	6. Foot Control	11.Air Adjustor for Low-speed Handpiece
2. 3-way Syringe	7. Water Adjustor for High-speed Handpiece	12. Air Adjustor for High-speed Handpiece
3. Rod	8. Water Adjustor for Low-speed Handpiece	13. Low Speed Handpiece
4. Pressure Gauge of Handpiece	9. Air Switch of Clean Bottle	
5. Power	10.High-speed/Low-speed Transferring Switch	

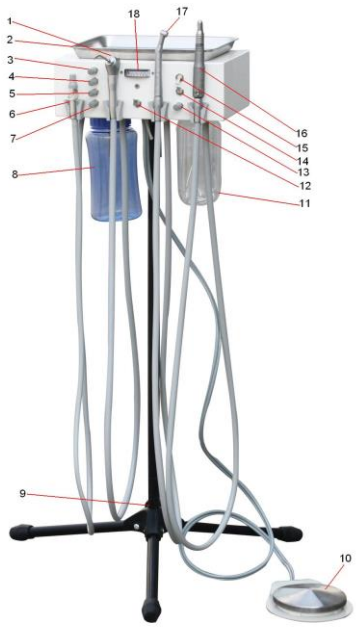
3.1.6 DU896 Structure





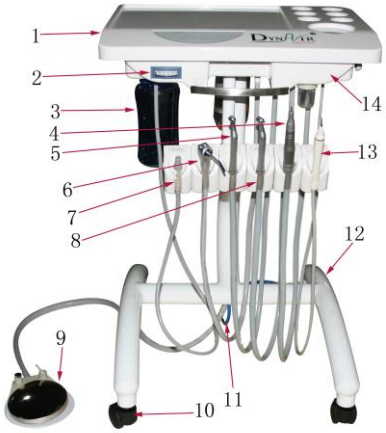
1. Box	10. Low Speed Handpiece	19. Air Intake
2. Pressure Gauge of Regulator Valve	11. Air Switch of Saliva Ejector	20. Solenoid Valve
3. Regulator Valve	12. Air Switch of Clean Bottle	21. Pressure Switch
4. Saliva Ejector	13. Water Adjustor for High-speed Handpiece II	22. Check Valve
5. 3-way Syringe	14. Water Adjustor for Low-speed Handpiece	23. Safety Valve
6. High Speed Handpiece I	15. Air Adjustor for Handpiece	24. Motor
7. High Speed Handpiece II	16. Pressure gauge of Handpiece	25. Clean Bottle
8. Clapboard	17. Water Adjustor for High-speed Handpiece I	
9. Foot Control	18. Dirt Bottle	

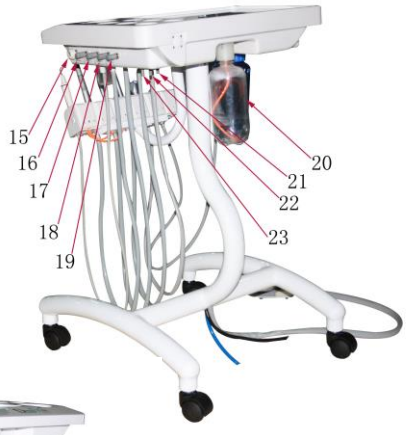
3.1.7 DU810 Structure

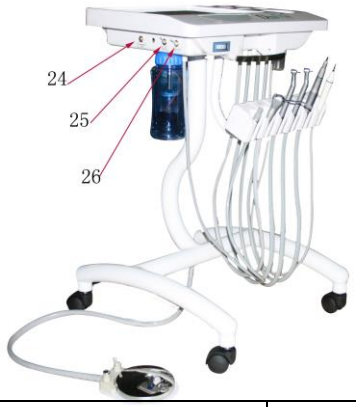


1. 3-way Syringe	7. Water Adjustor for Low-speed Handpiece	13. Air Adjustor of Saliva Ejector
2.Stainless Steel Instrument Tray	8. Dirt Bottle	14. Air Switch of Saliva Ejector
3. Air Adjustor for High-speed Handpiece	9. Bracket	15. Air Switch of Clean Bottle
4. Water Adjustor for High-speed Handpiece	10. Foot Control	16. Low Speed Handpiece
5. Air Adjustor for Low-speed Handpiece	11. Clean Bottle	17. High Speed Handpiece
6. Saliva Ejector	12.High-speed/Low-speed Transferring Switch	18. Pressure Gauge of Handpiece

3.1.8 DU811, DU812 Structure

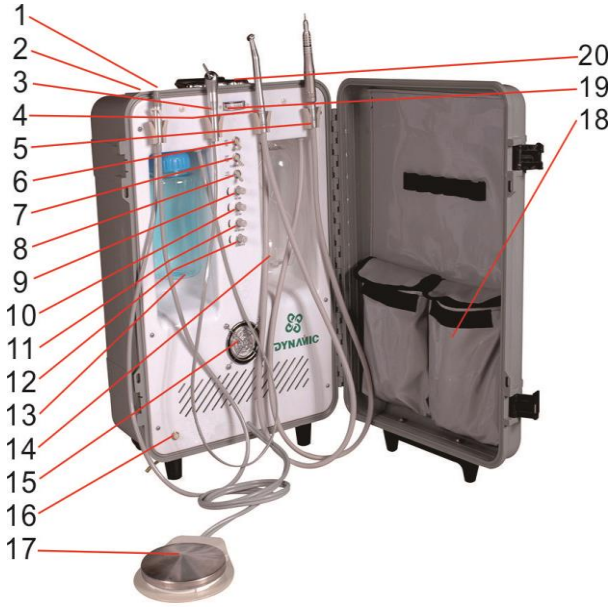






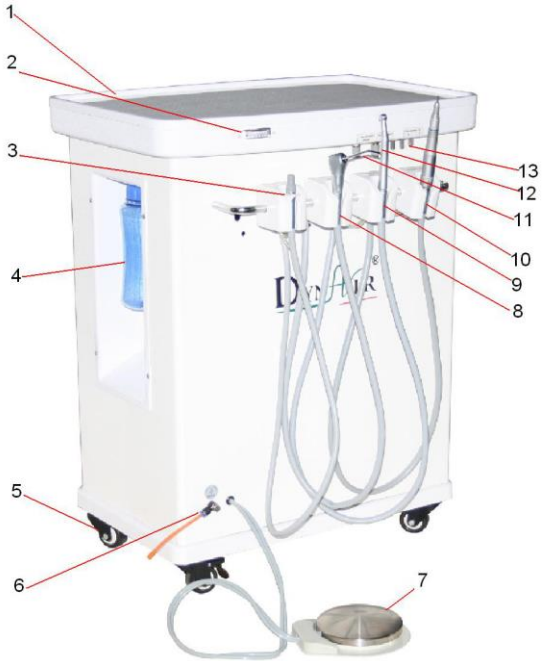
1. Cover of Instrument Tray	10. Wheel	19. Water Adjustor for Low-speed Handpiece
2. Pressure Gauge of Handpiece	11. Connector Pipe of Air Inlet	20. Clean Bottle
3. Dirt Bottle	12. Bracket	21. Air Adjustor for High-speed Handpiece I
4. Low Speed Handpiece	13. Scaler	22. Air Adjustor for High-speed Handpiece II
5. High Speed Handpiece	14. Instrument Tray	23. Air Adjustor for Low-speed Handpiece
6 .3-way Syringe	15. Scaler Power	24. Reducing Pressure Valve
7. Saliva Ejector	16. Scaler Coolant	25. Air Switch of Clean Bottle
8. High Speed Handpiece II	17. Water Adjustor for High-speed Handpiece	26. Air Switch of Saliva Ejector
9. Foot Control	18. Water Adjustor for High-speed Handpiece	

3.1.9 DU800 Structure



1. Saliva Ejector	8.High-speed/Low-speed Transferring Switch	15. Fan
2. Box	9. Air Adjustor for High-speed Handpiece	16. Air Inlet
3. 3-way Syringe	10. Air Adjustor for Low-speed Handpiece	17. Foot Control
4. High Speed Handpiece	11. Water Adjustor for High-speed Handpiece	18. Instrument Bag
5. Low Speed Handpiece	12. Water Adjustor for Low-speed Handpiece	19. Pressure Gauge for Handpiece
6. Air Switch of Saliva Ejector	13. Dirt Bottle	20. Rod
7. Air Switch of Clean Bottle	14. Clean Bottle	

3.1.10 DU752



1. Top Cover	6. Drain Valve	11. Water Adjustor for High-speed Handpiece
2. Pressure Gauge	7. Foot Control	12. Water Adjustor for Low-speed Handpiece
3. Saliva Ejector	8. 3-way Syringe	13. Triple Diaphragm Valve
4. Dirt Bottle	9. High Speed Handpiece	
5. Wheel	10. Low Speed Handpiece	

3.2 Installation

3.2.1 Open the box and check

Open the box, and to check the unit is good or not. And to check the accessory are complete or not, according to the packing list. If any questions, please contact our distributor or our company directly.

3.2.2 Installation

To place the dental unit on ground, that is flat and solid. To open the box, and take out the foot control and water bottle on the ground, then take out the high speed handpiece, low speed handpiece and water bottle, hang them on the rack separately.

3.2.3 Handpeice

Our handpiece is 4 holes handpeice, M4 handpiece connector. Please connect the handpiece and handpiece connector better according to the manual, and please note that do not run the handpiece without the pressure.

3.2.4 Scaler (DU893, DU812, DU852)

The installation of scaler, please refer to the manual, and turn the head of scaler tighten, or there will be no power outlet.

Warning: There must be water of scaler, of will harm the patient and affect the life of scaler.

3.2.5 LED curing light (DU893, DU812, DU852)

The installation of LED curing light, please refer the manual carefully.

3.2.6 Power

Take out the power line from the box, connect the power line with the box, and then connect the other side with the plug.

Note: Please do not share the plug with other machines, in order to avoid the unstable of voltage, and result of damaging the products.

4. Test

4.1 Air supply

Before using, please turn on the power, the built-in air compressor will work automatically, and compress the air to the tank. The pressure of the tank will be increased from 0 Bar to 8Bar, when the pressure is on the 8bar, the air compressor will stop working. When the pressure of the tank is below 5Bar, the air compressor will begin to work, and on the 8Bar, will stop working. This happens repeated.

Note: In order to avoid accident, the unprofessional person does not allow operating or fixing the unit.

4.2 Handpiece

The unit has one high speed handpiece and low speed handpice. The water of handpiece is coming from the water bottle directly. The water pressure is determined by the air pressure in the water bottle, and controlled by the special pressure valve in the box. The way of adding water: To turn off the “Air switch”, after the exhausting of air in the bottle completely, and to pick up the water bottle clockwise, to add the distiller water into the bottle, and turn the bottle tightly counterclockwise. Then turn on the “Air switch”, the process of adding water completely.

Pick off the handpiece from rack, and please turn the “Low speed /high speed transferring switch” to the “high speed handpiece”, press the foot control, turn the “Pressure Adjustor of High Speed Handpiece” counterclockwise, to adjust the handpiece to spray water from small to large. The turbine of handpiece start to spring water: namely that the handpiece begin to work.

Pick off the handpiece from rack, and please turn the “Low speed /high speed transferring switch” to the “low speed handpiece”, press the foot control, turn the “Pressure Adjustor of Low Speed Handpiece” counterclockwise, to adjust the handpiece to spray water from small to large. The turbine of handpiece start to spring water: namely that the handpiece begin to work.

Note: This time, the “Pressure gauge of handpiece” in the panel is the working pressure of handpiece, when using the handpiece, please do not exceed the max pressure of handpiece, and avoiding the harm of handpiece. To adjust the handpiece carefully, the turbine of handpiece is the precision devices, please read the manual before using carefully.

4.3 3-way syringe

The unit is equipped with a 3-way syringe, which use the distilled water together with handpieces. The inlet water tube and inlet air tube are connected to connector of the back panel. Press down the ring nut and insert the nozzle, and then lock the nozzle by resetting the ring nut. Check whether the air and gas from 3-way syringe is consistent with mark on the unit.

4.4 Saliva ejector

The unit is equipped with a saliva ejector. Open the switch, use adjustor to adjust the suction flow, it could work normally.

Note:

1. The unit could only use alone, it could not use together with handpieces at the same time. If not, it would affect normal use of handpieces.

2. Suck a cup of purified water, eliminate the seeper in the tube and clean the saliva bottle each day after use.

3. When cleaning, screw it off in an anticlockwise direction then use the disinfectant to clean it. Then screw it on the counterclockwise. (Note to tighten)

4: When the sewage collection bottle exceeds the highest water mark in the logo, please clean the sewage in time, and then loaded on to continue using.

4.5 Ultrasonic Scaler (DU893, DU896, DU812, DU852)

The unit is equipped with an ultrasonic scaler. Pick up the ultrasonic scaler from the shelf; tread down the foot control, then it could be used normally. The power output could be adjusted. The adjustor is equipped on the face panel.

The head of the ultrasonic scaler must be screwed tighten. If not, there would have no efficient power output. The parts are rigid, please read the operation manual carefully.

Note: The ultrasonic scaler only could work with water supply, or that would damage the ultrasonic scale.

4.6 LED curing light (DU893, DU896, DU812, DU852)

The unit is equipped with LED curing light. From the accessories, you may find the operation manual of curing light.

4.7 Air regulator and filter

To be sure the air by inputting the unit is stable, clean and dry; we equip an air regulator and filter on the air inlet of the unit. The air pressure would be stable, while it would not exceed the setting value. At the same time, the air regulator and filter could filter the air impurities (Filtration accuracy would be equal or greater than 25μm.) and the water. The water by filtering will gather in filtering cup, after a period of time, it must be more water gathered. Then you must drain off the water, so as not to affect the filtering effect.

In general, any of the following conditions having, you need to drain off the water by the air regulator and filter.

1) By using more than one weeks

2) The water in the filtering cup occupies three quarters of the volume

3) The color of the water in the filtering cup is changed. (Not colorless transparent water)

The detail methods of draining off the water for air regulator and filter are following:

Open the front panel of the unit, then clockwise rotate the nut at the filter bottom, then the water would be drained off. When finishing drain off the water, counterclockwise rotate the nut, it would be ok. To protect the environment, you could pad bibulous object on the air outlet, such as cotton, clean paper, sponge, etc. Then it could absorb the water.

4.8 Clean water bottle

For this unit, all water for handpieces, 3-way syringe and Ultrasonic Scaler are from the clean water bottle. Thus, the user needs to add the distilled water to the clean water bottle timely. The methods of adding water is following: Turn off the air switch, when the air in the bottle is drained off, holding the bottle by your hand, rotate clockwise and take down the bottle. After injecting the water, counterclockwise rotate the bottle and make it tight (note to seal). Then turn on the air switch, the process of adding water is finished.

In general, any of the following conditions having, you need to clean the bottle and change water in it.

1) The unit is not used by more than three days.
2) After using every day, you need to clean it.
3) The color of the water in the bottle is changed. (Not colorless transparent water)

5. Operation and Maintenance

5.1. After using saliva bottle, suck a cup of purified water, to clean the tube, suction generator and other spare parts to protect them from congestion and damage.

5.2. Before using handpieces, the user need to roll and spray by 1 to 2 second to get rid of the dirt in tube, then prevent the occurrence of cross-infection.

5.3. Wipe surface of the units, prevent harmful materials from corroding the units.

Do not use the cleaner with acid and alkali in corrosive.

5.4. By using handpieces, you need to strictly comply with the operation and maintenance of the handpieces.

Note: the cleaning and lubrication of handpieces.

5.5. Please turn off the water switch, power switch and air switch when leave after treatment.

5.6. Before first treatment everyday, please make the handpieces and scaler work about 2 minutes, to clean the water and air tubes.

5.7. After using handpieces and before sterilization, the user needs to make the cleaning and lubrication, to make the handpieces work normally and prolong the use time. By using handpieces, you need to strictly comply with the operation and maintenance.

5.8. Sterilization and disinfection of the spray tip of 3-way syringe and handpieces

The following requirements are completely according to the provisions of the handpieces instruction manual.

- Remove the spray tip of 3-way syringe and handpieces
- Get rid of all visible dirt.
- Make sterilizing in the saturated steam of 132℃by 10 minutes
- After treatment by each patient, please make them sterilizing before treatment for next patient.

Note: For the parts which couldn't tear down, please use disposable plastic package to sphere when using.

5.9. Disinfection of ultrasonic scaler

The following requirements are completely according to the provisions of the ultrasonic scaler instruction manual.

● Before sterilization, please clean the ultrasonic scaler and the tip.

● Sterilization condition: 135℃ in 10 minutes or 120℃ in 20 minutes

● Use the soft cloth with 45% cleaner to clean the ultrasonic scaler. Do not make it into any liquid or directly spray any liquid. Or the liquid would enter into ultrasonic scaler to make it cutting-out and damage.

5.10. The handpieces tube and connections of ultrasonic scaler could only be cleaned by cleaner instead of temperature sterilizing.

5.11. Change the fuse tube

5.11.1 Pull out the plug from the socket; pull out the fuse cover from the fuse socket.

5.11.2 Take out the damaged fuse tube

5.11.3 Insert the new fuse tube by make the fuse rating consistent with fusing feature in instruction manual.

5.11.4 Press the fuse cover in the fuse socket.

Note: The fuse tube unqualified could cause fires!

6 Troubleshooting

Item	Problem	Reason	Check	Tips
1	The handpiece can not spray water while rotating.	The water in water tank has been used up.	Check the water volume of the water tank.	Add the distiller water.
		Air & water distributing valve is blocked.	Check the “Air switch” is open or not, or is working or not.	Open the “Air switch”, or replace it.
		The double air switch can not work	Check the 3-way syringe sprays water or not.	Regulate the Air & water distributing valve or clean the valve core and o-ring.
			Check the air pipe is good or not, or check the core can work or not.	
2	The handpiece leaks water when not in operation.	Air & water distributing valve fails to function.	Remove one side of the valves in handpiece, take out faucet, spring and valve core.	replace the valve core and o-ring
			Check there is any dirty, and o-ring can work or not.	
		The foot switch is not restored.	The pressure gauge does not decrease when foot switch is put up, to check the o-ring of foot control.	Open the cover of foot control, and clean the o-ring.
3	The air switch leak water or air	The core is circled too far.	Open the adjustor valve and to check it.	Install the core correctly.

		The core and o-ring is broken.	Open the adjustor valve and to check it.	Replace the o-ring
		The connector of valve is too loose	Check the connector leak the water or air or not.	Turn the connector tighten.
4	The 3-way syringe leads water and air	The button of 3-way syringe is not restored, or there is dirty, or the core and o-ring can not work well.	Check the water button of the 3-way syringe.	Clean or replace the core and o-ring.
5	The noise or shaking is so big, unit can not work.	The voltage is too low.	Let the professional person check the voltage.	Use the voltage stabilizer.
6	The built-in compressor can not be started up	The wire to the power supply has fallen off.	Check the connector of power is good or not.	Connect the line correctly.
7	The built-in air compressor keeps working and can not be stopped	Power line orelectronic component is loose. The solenoid of compressor can not work normally.	Open the panel, and to check the connector line and component When the compressor work, the solenoid valve can not close completely.	Let the professional person connect the line according to circuit diagram Open the core of
		The pressure switch is broken.	Check the pressure switch works normally or not.	Adjust or replace the pressure switch.
		The connector leaks air.	Reserve or listen the air flow, or use the bubble to check the connector of leakage air.	Connect the various connector correctly, avoiding leaking air.
		Pressed drain valve leaks air.	Check the pressed drain valve leakage of air or not.	Avoid leaking air.
8	No water for scaler	Air switch was close	Check the air switch	Open the air switch
		No water in bottle	Check the water volume of the water tank.	Add more distiller water
		The water adjustor of scaler is closed	Check the water adjustor	With large water flow
		Solenoid vale of scaler was broken	Check the solenoid valve	Replace the Solenoid Valve

7. Working principles

7.1 Working principles of DU752, DU852, DU892, DU893, DU895, DU895A, DU896

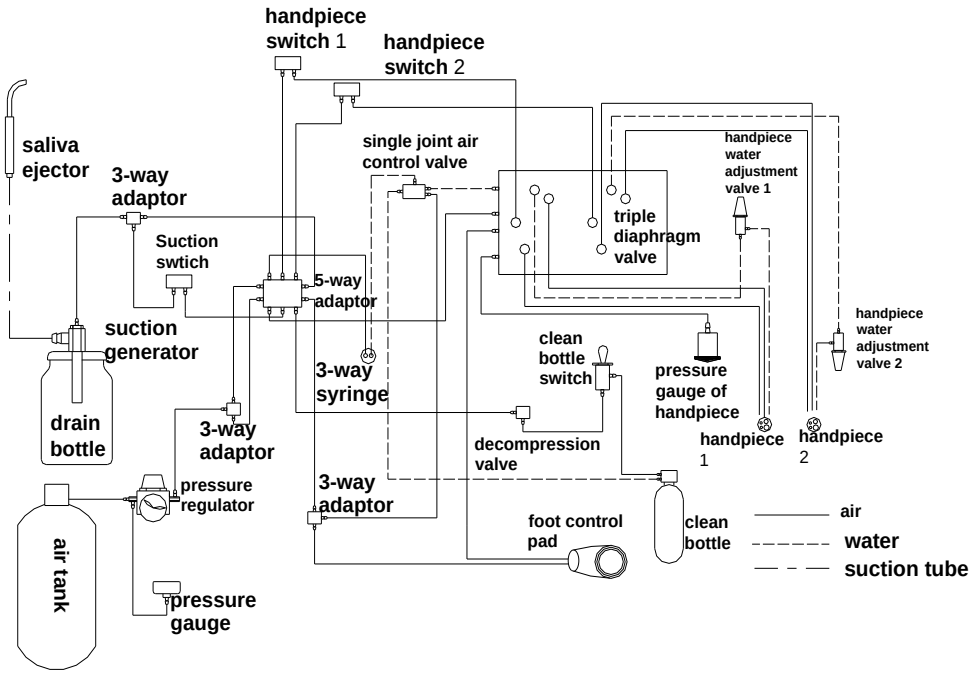
The portable dental unit connects with inserted oil free air compressor to supply stable and clean air for high speed handpieces when pressing foot control pad. Clean water bottle connects to air tank, and supplies water for handpieces, 3-way syringe by adjusting the decompress valve.

7.2 Working principles of DU810, DU811, DU812, DU800

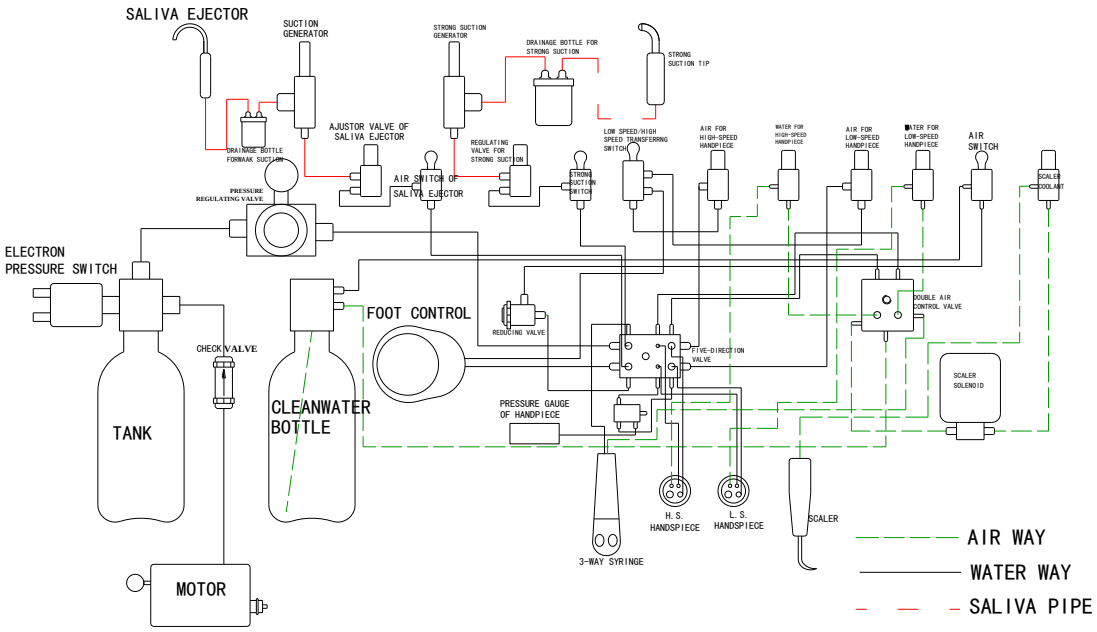
The portable dental unit connects with external oil free air compressor to supply stable and clean air for 3-way syringe, scaler, saliva ejector and clean water bottle when pressing foot control pad. Clean water bottle supplies water for handpieces, 3-way syringe, scaler, saliva ejector by adjusting the decompress valve. Inserted transformer ensures stable power for scaler.

8. Air and water connection diagram of DU Series Portable Dental Units

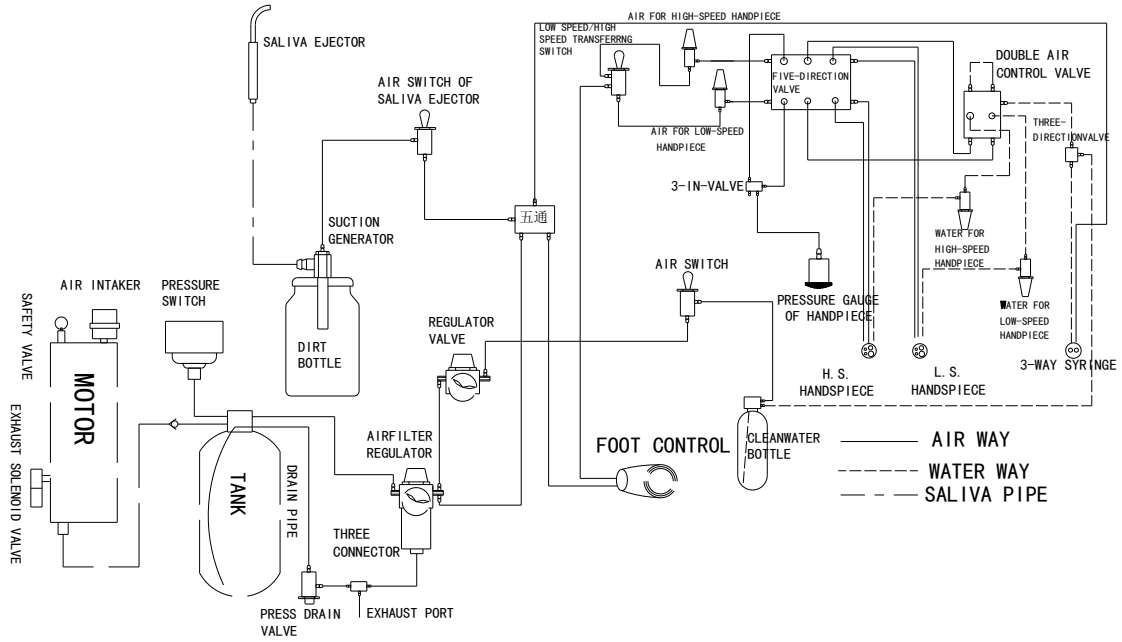
8.1 DU752 air and water connection diagram



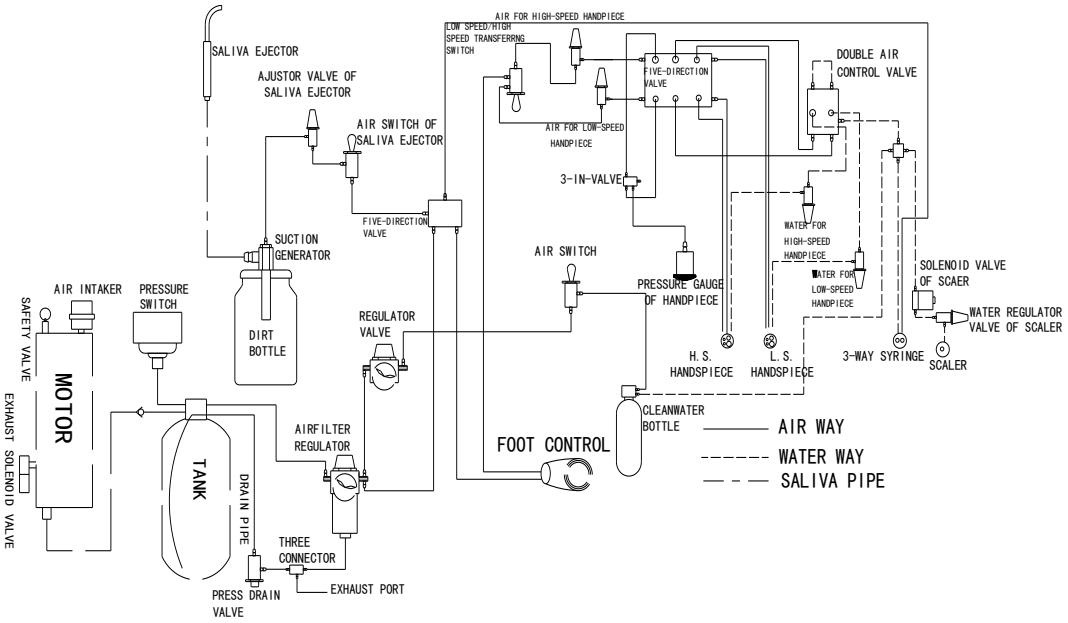
8.2 DU852 air water working principle diagram



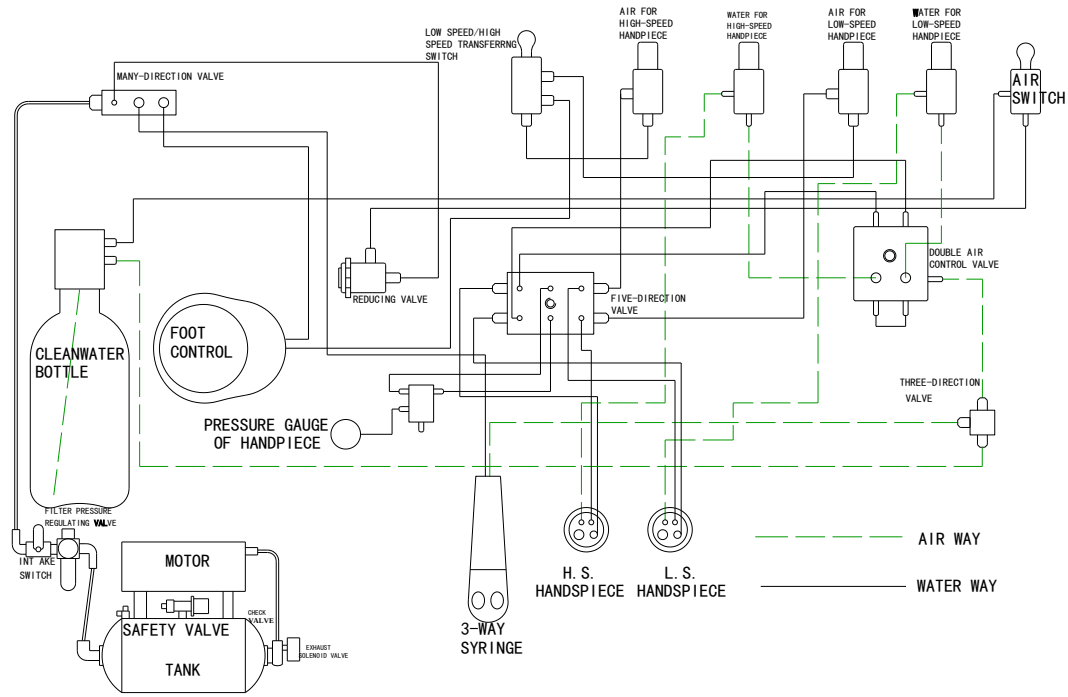
8.3 DU892 air water working principle diagram



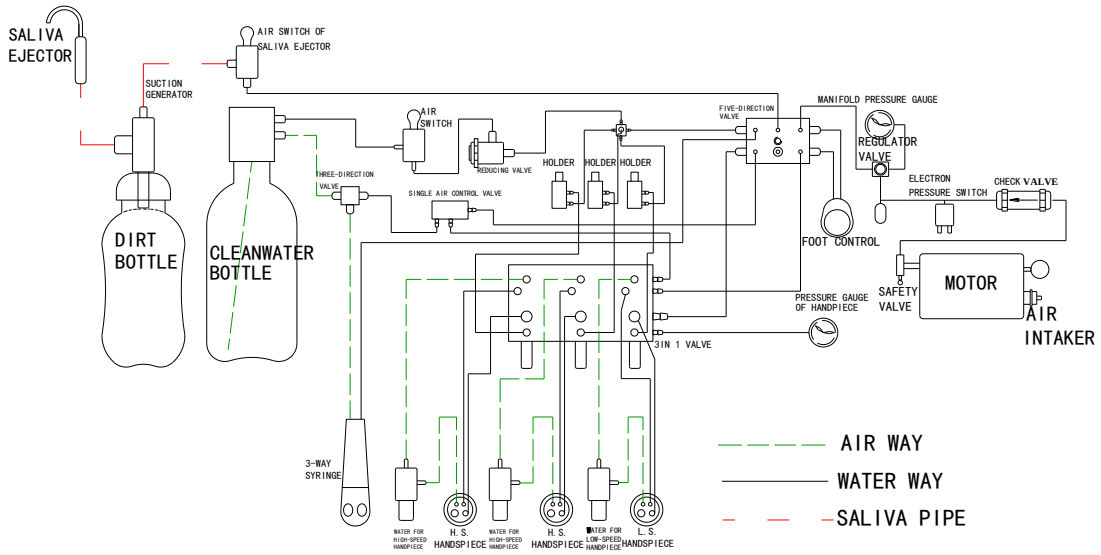
8.4 DU893 air water working principle diagram



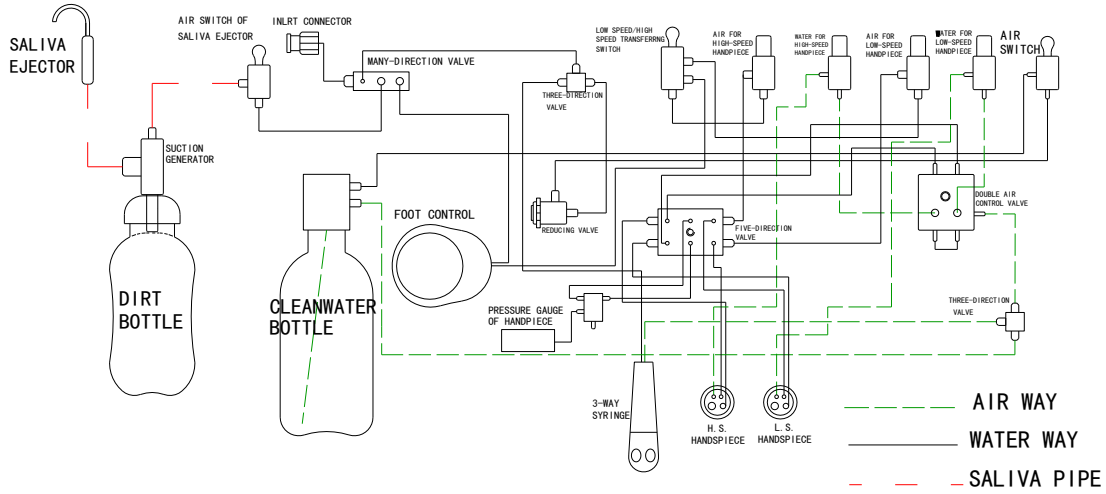
8.5 DU895、DU895A air water working principle diagram



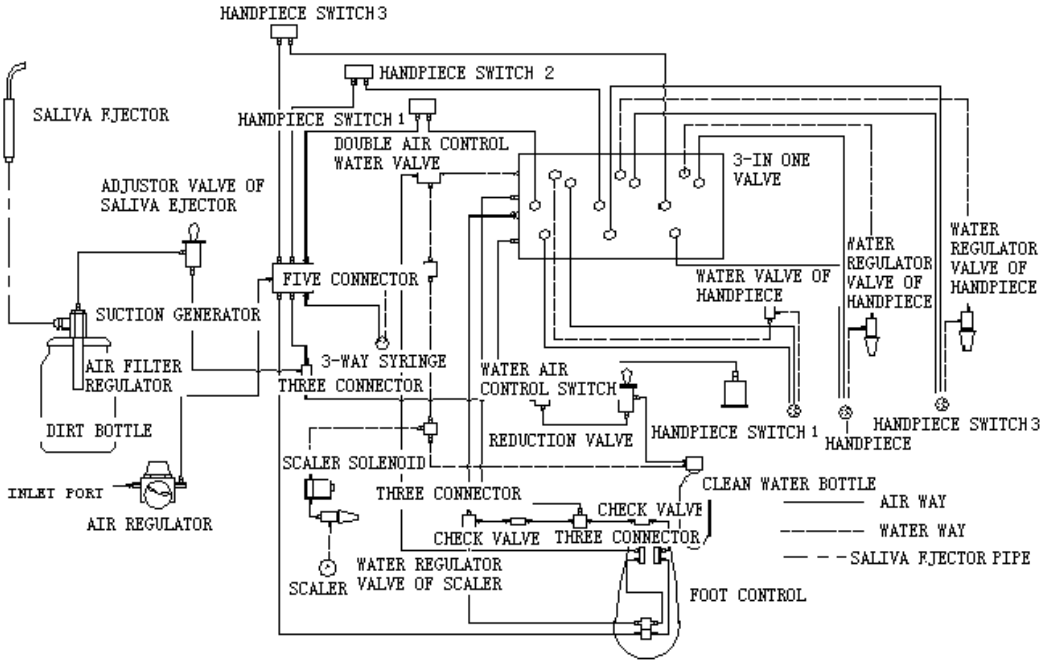
8.6 DU896 air water working principle diagram



8.7 DU800, DU810 air water working principle diagram

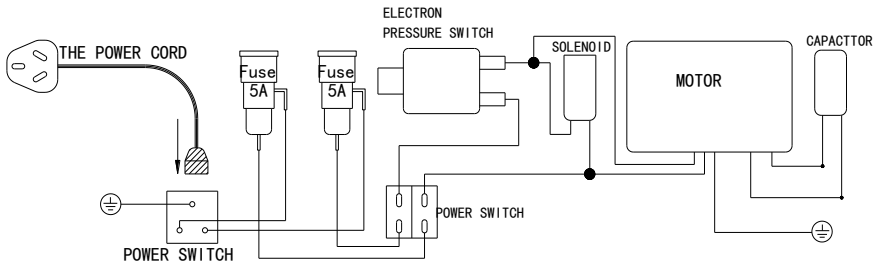


8.8 DU811, DU812 air water working principle diagram

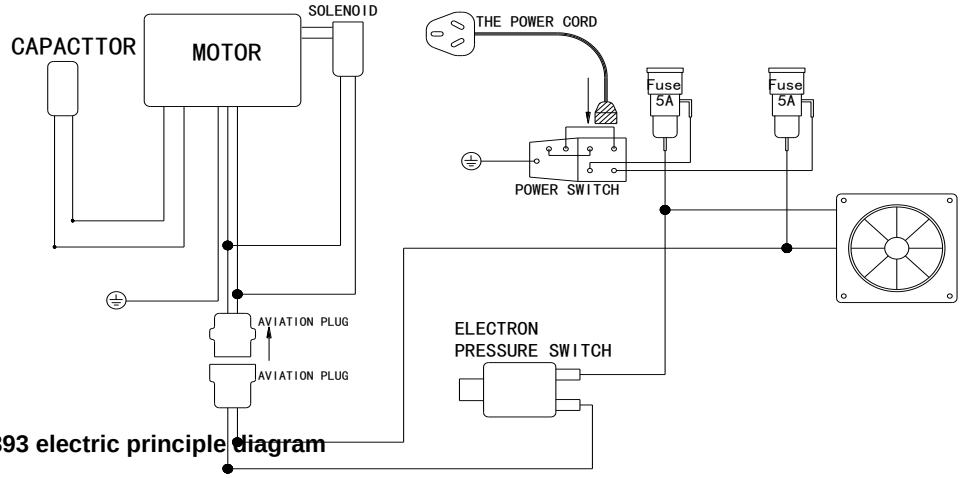


9. DU series portable dental unit electric principle diagram

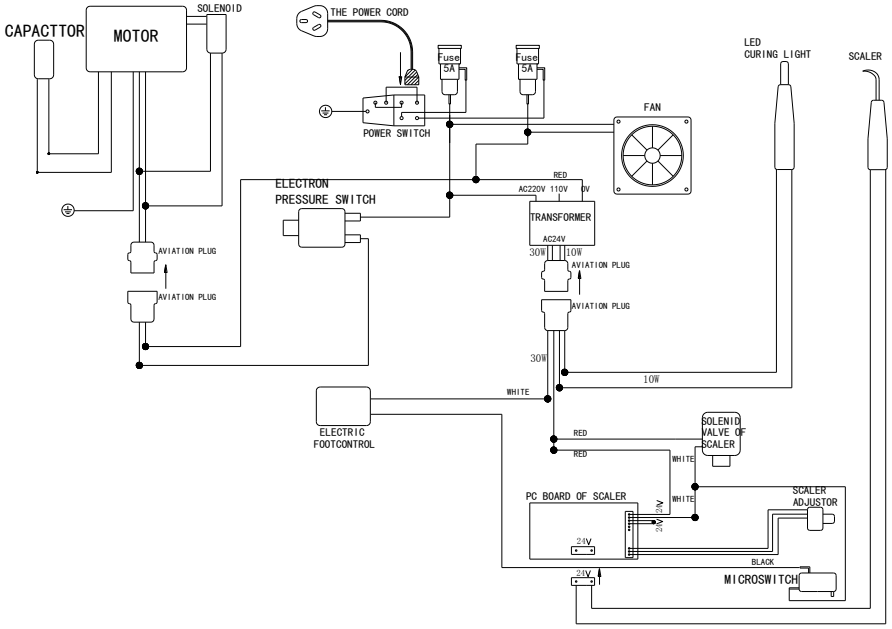
9.1 DU752, DU895, DU895A, DU896 electric principle diagram



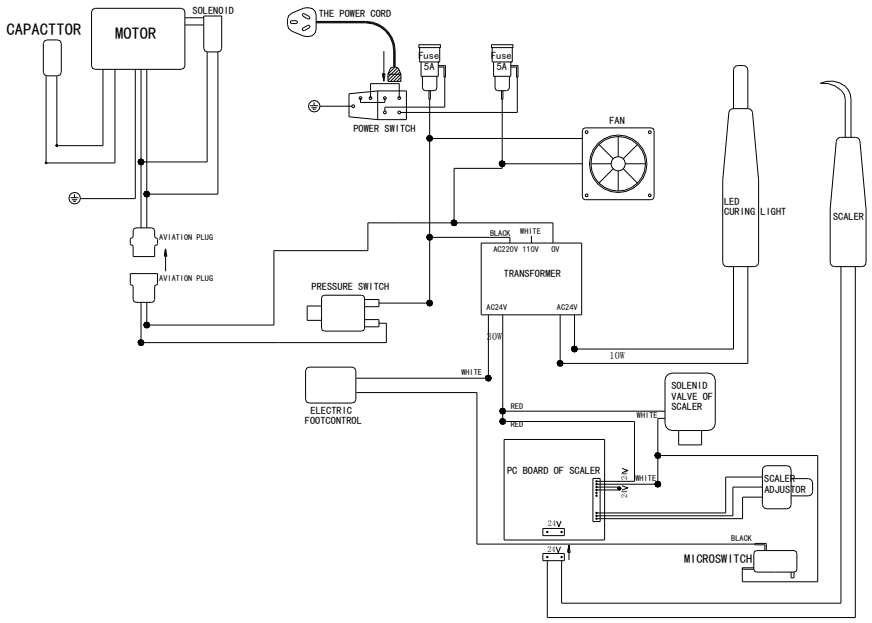
9.2 DU892 Electric Principle Diagram



9.3 DU893 electric principle diagram



9.4 DU852 Electric Principle Diagram



10. Notices

1. While working, to ensure all move into stroking range, no accessible things exist.
2. Air tank should drain water regularly, usually every 2 days. The sewage handled need apply with local rule of law.
3. When change electronic component, cut off the power.
4. Cut off the power of machine, when clearance and maintenance.
5. Forbid operated portable dental unit by untrained workers, avoid any mistake while operation.
6. Portable dental unit need maintain and repair by trained or professional workers.
7. The elderly, child, intellectual disorder and psychopath, need monitored by specially-assigned person, avoid any hazards by medical oilless air compressor when operating.
8. Knew and foreseen the portable dental unit may cause hazards to people, forbid use portable dental unit.
9. When portable dental unit retired, capacitor and electronic component handled need apply with local rule of law.
10. Patient can't operate the unit.
11. Keep the aged, children, persons with mental retardation, and madmen away from operating air compressor, to void injury.
12. When the injury risk is predictable, forbid to operate portable dental unit.
13. When the unit is scrapped, the disposal of its capacitor and electronic components must meet the local law.
14. The suction tip is disposable.
15. The user should choose qualified suction tip.

16. When the unit is scrapped, the handpiece and drain tubes should be sterilized before recycling.

17. After 2 months long operation, all connecting bolts on the unit must be reviewed. Tighten the loosed bolts. Later on, review every 6 months.

18. The user should choose qualified high-speed handpiece, low-speed handpiece and their accessories such as spray nozzle, head. The products with medical device registration;

19. The pressure gauges (inlet pressure, water bottle pressure, and handpiece pressure) should be reviewed every 6 months.

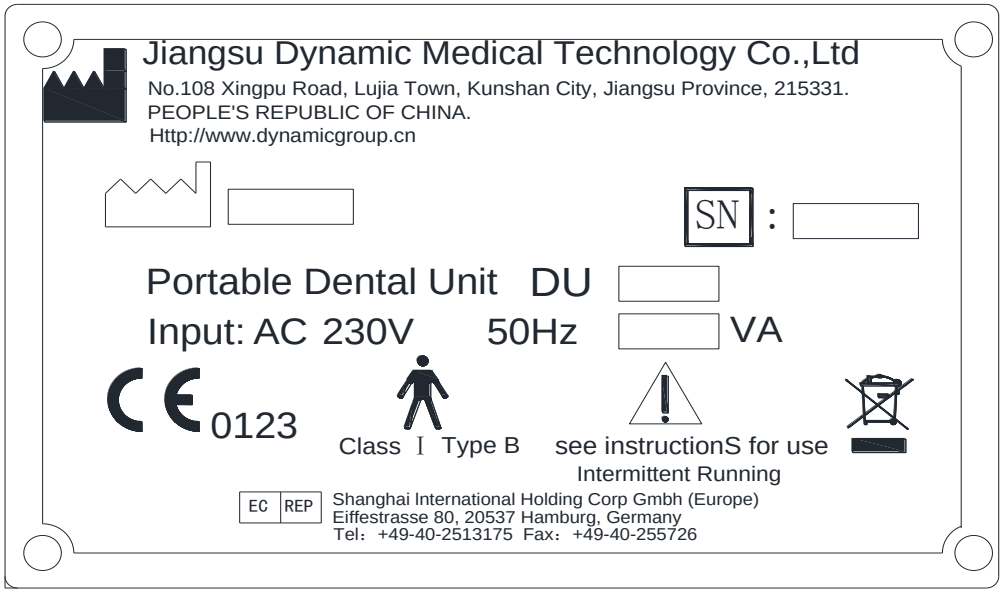
20. This unit isn't equipped with water sterilization system. In order to ensure the unit's sterilization won't affect the quality of water, the handpieces, syringe spray tip, scaler handle and tip should be sterilized after each use.

21. The treatment of disinfected water released from drainage bottle should be in accordance with local laws and regulations.

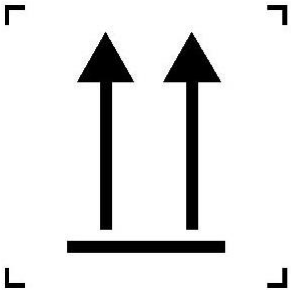
11. External mark and content

1. Following are concluded in external packing:
   Product name: Portable dental unit
2. Model: DU ××××
3. Standard NO.:
4. Product registration NO.:
5. Factory name: Jiangsu Dynamic Medical Technology Co.,Ltd
   Factory address: No.108 Xingpu Road, Lujia Town, Kunshan City, Jiangsu Province, 215311。
   PEOPLE'S REPUBLIC OF CHINA
6. Packing dimension:
   External size: L×W×H
   G.W: kg
   N.W: kg

7. Nameplate



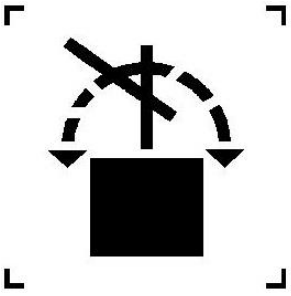
8. Graphics mark:



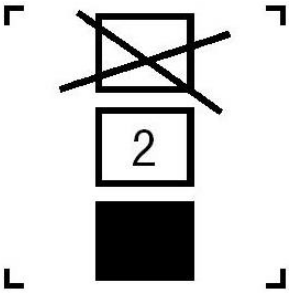
Upward

Fragile

Keep dry



Avoid roll



Avoid superposition

12. DU series portable dental unit packing list

Series No.	Product name	Quantity	Unit	Remark
1.	DU series body	1	pc	DU752、DU852、DU893、DU892、DU895、DU895A、DU896、 DU810、DU811、DU812、DU800
2.	Instruction book	1	pc	DU752、DU852、DU893、DU892、DU895、DU895A、DU896、DU810、DU811、DU812、DU800
3.	Accessory bag	1	pc	DU752、DU852、DU893、DU892、DU895、DU895A、DU896、DU810、 DU811、DU812、DU800
4.	Clean water bottle	1	pc	DU752、DU852、DU893、DU895、DU895A、DU896、DU810、DU811、DU812、DU800
5.	Saliva bottle	1	pc	DU752、DU852、DU893、DU895、DU895A、DU896、DU810、 DU811、DU812、DU800
6.	Stainless-steel pallet	1	pc	DU810
7.	Tripod	1	pc	DU810
8.	Electric wiring	1	pc	DU752、DU852、DU893、DU892、DU895、DU895A、DU896
9.	Φ8 XΦ5 pipe	3	pcs	DU810、DU811、DU812、DU800

DYNAMIC

EC REP

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