



**UK beauty machines -tattoo &hair removal lasers**

## Manual of Users

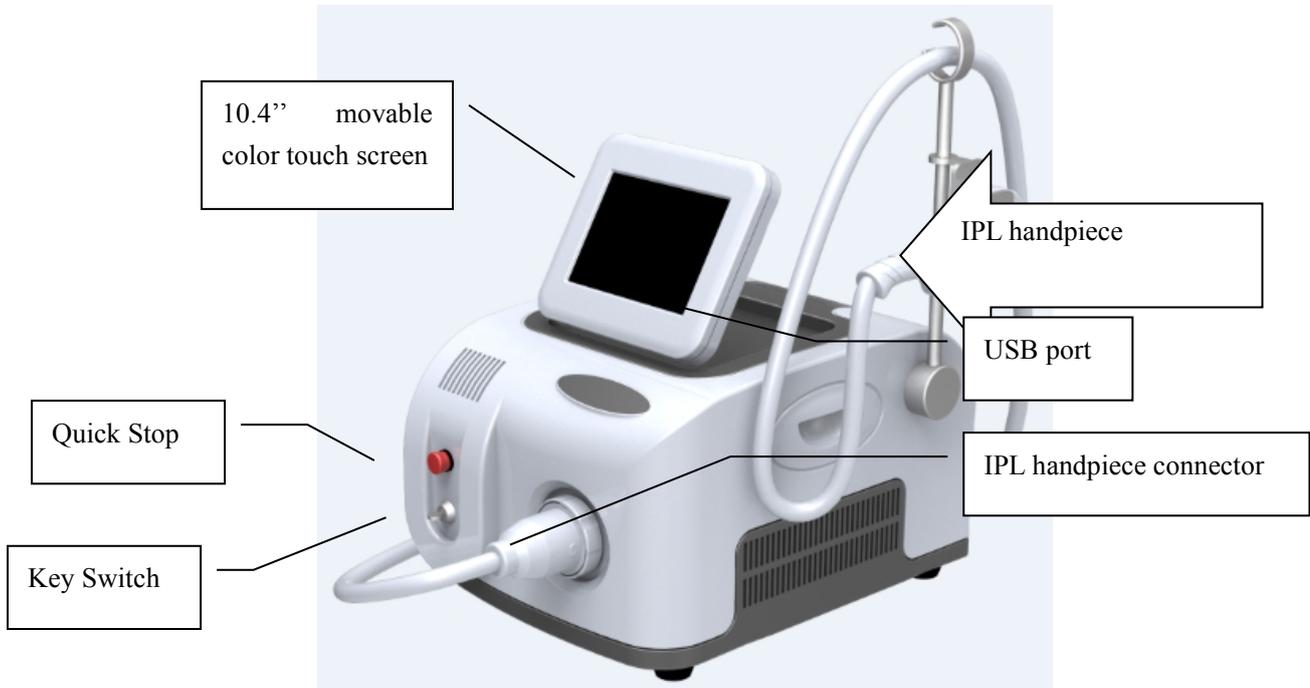
Model No.: IE-9



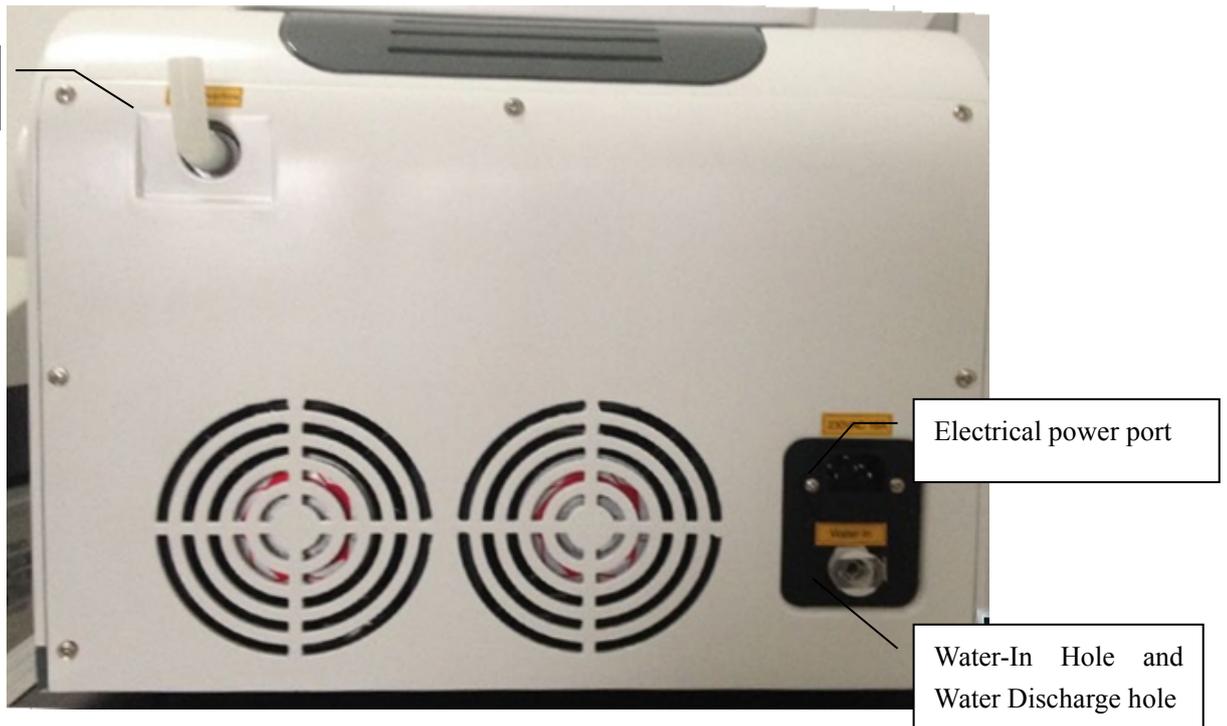


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## Chapter 1 Introduction



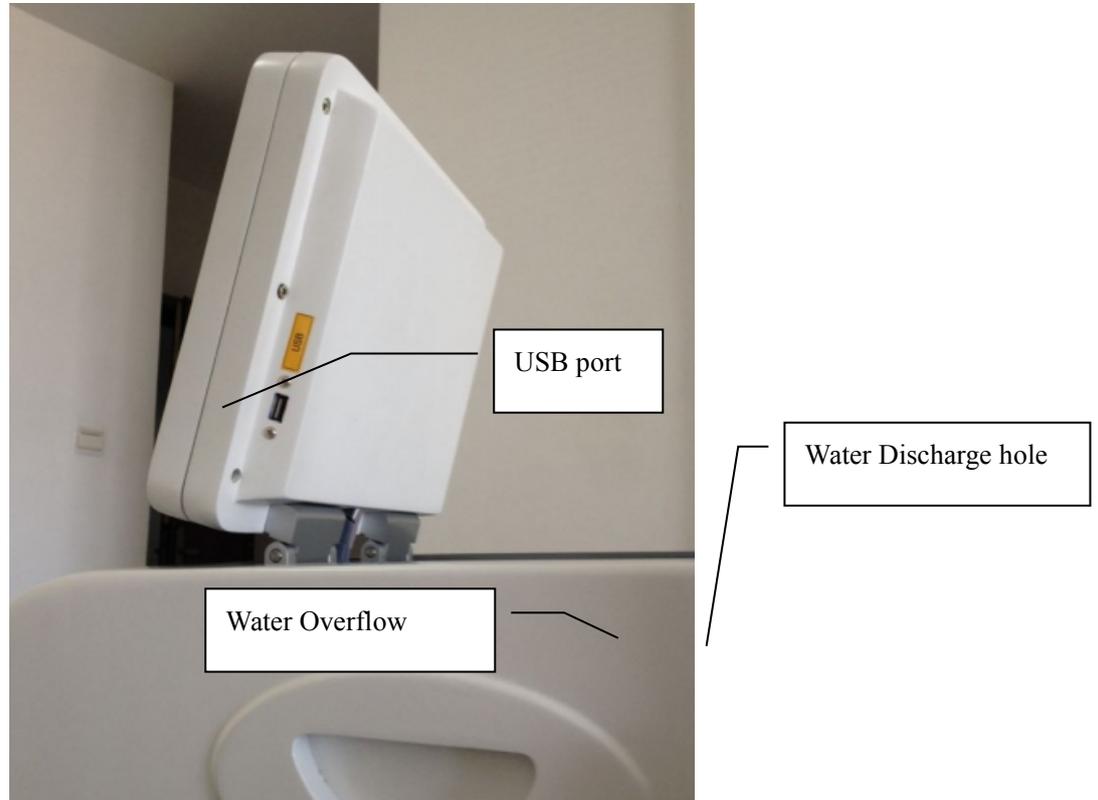
Front view





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Back view



## Chapter 2. Installation

1. This is the main machine you receive.



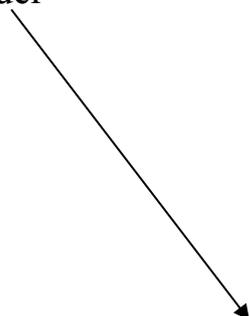
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2. Raise the screen slowly.

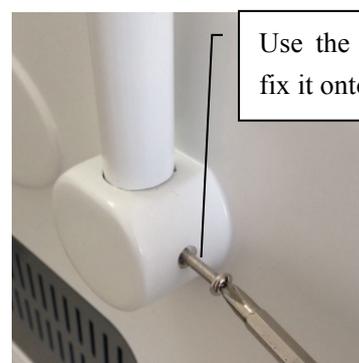


Install the handle holder





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Use the long screw to fix it onto the machine

### 3. Install handle onto the machine

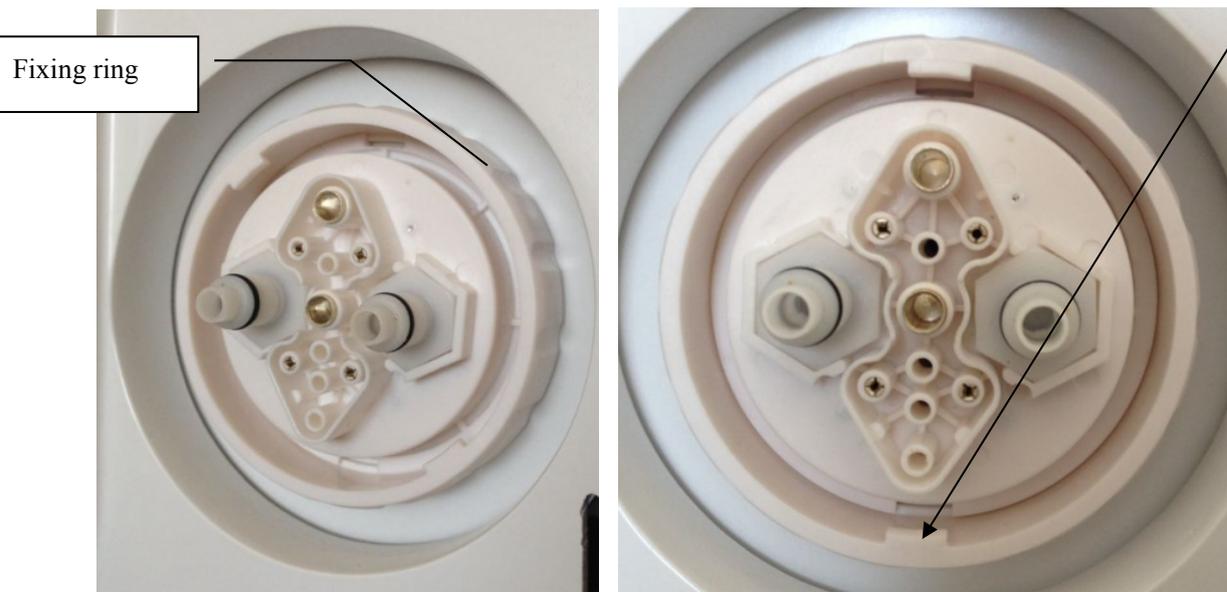
Use the two short screws here

Rotate the Fixing ring and let the two Tubers on the Fixing ring up and down.

Tuber



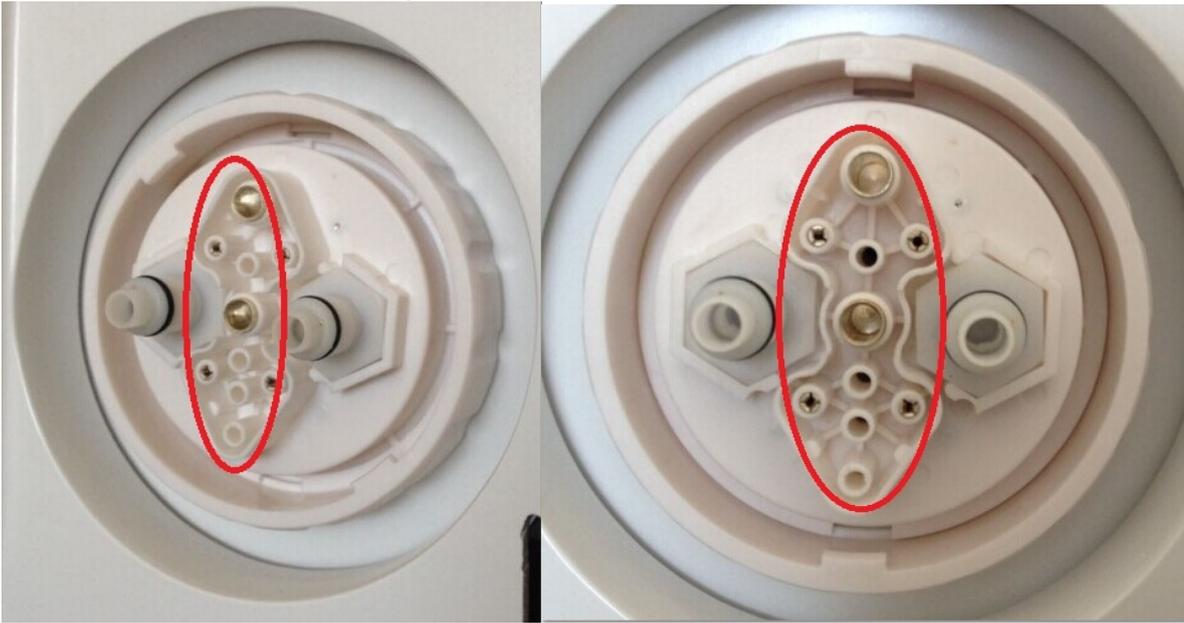
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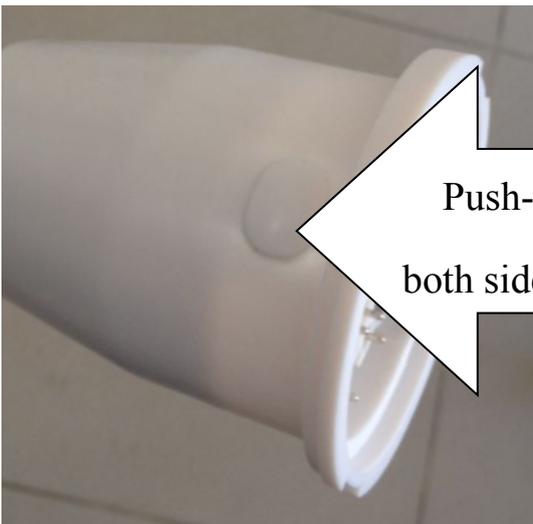
Attention: make sure there is no water on the plug-in components (see picture below in red circles) to prevent some electric circuit short cut.



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Push-in the two lock buttons on both side of the handle plug



Push-in the two button locks on both sides of the plug

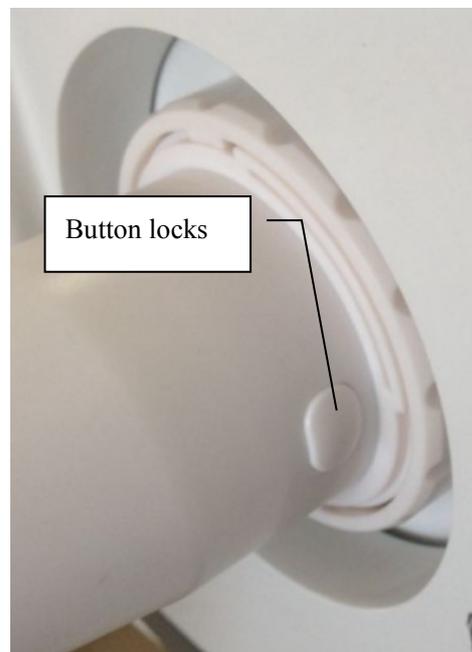
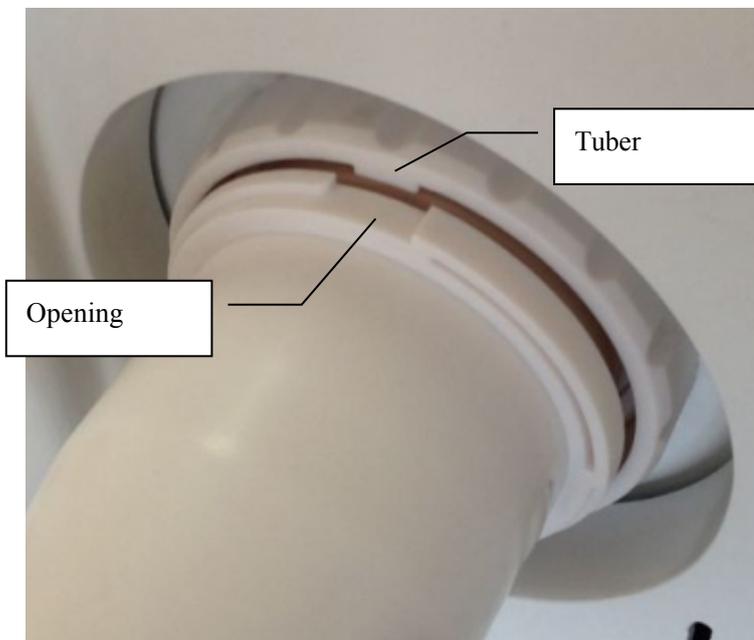
Pay attention to the direction of the handle plug onto the socket. Don't turn upside down.



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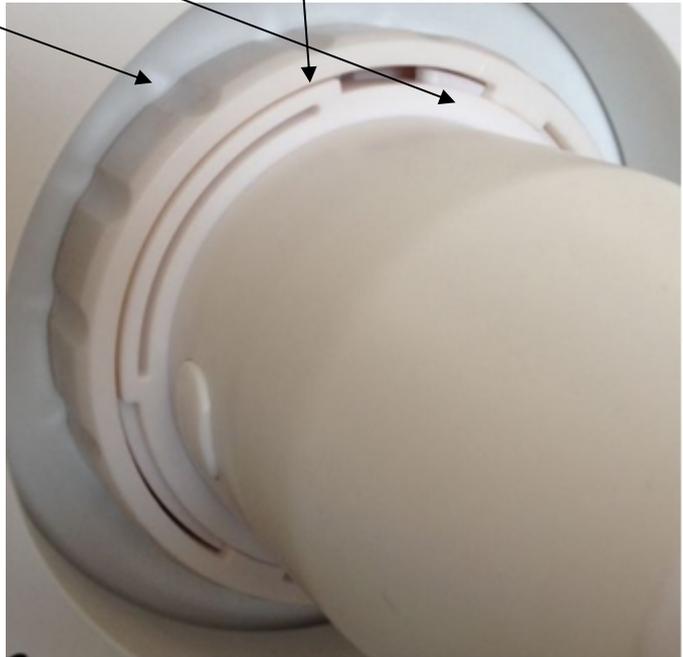
Let the Opening on the plug faces forward to the Tuber on the ring and push for connection. The two button locks springs and you can hear it.





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Rotate the Ring and let the Tuber deviates from the Opening, so that the handle is locked on the socket.



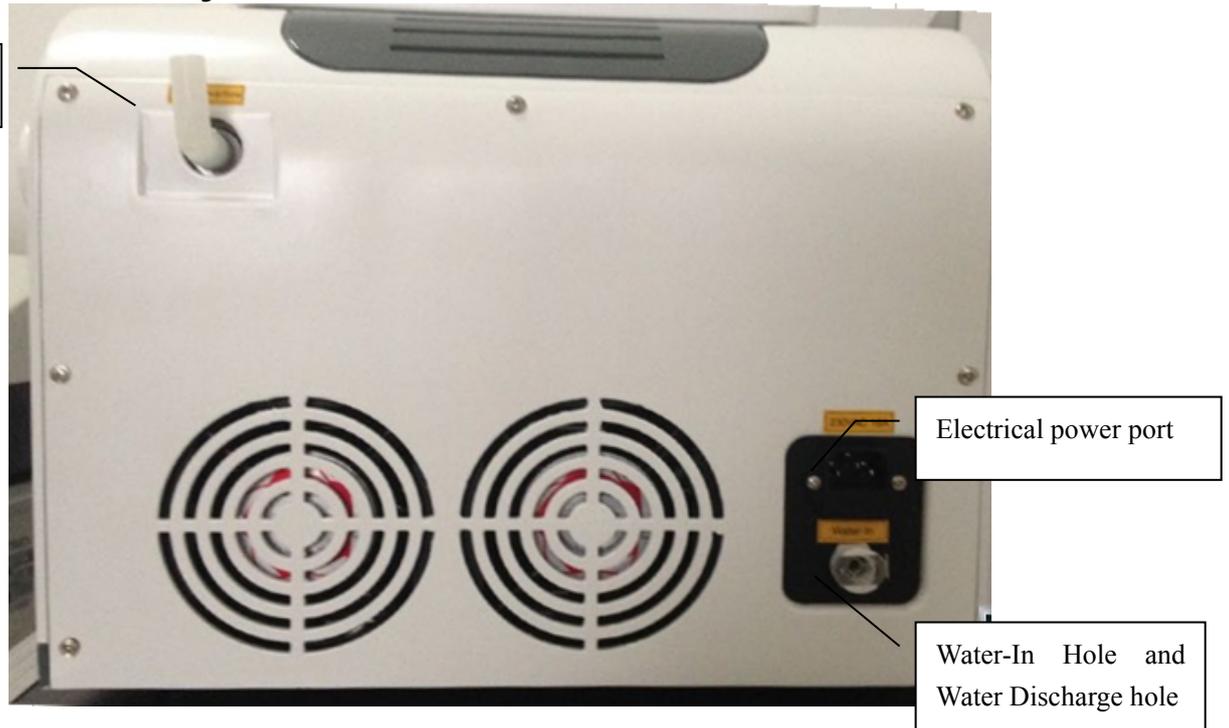
When you need to take down the handle from the machine, you need go backwards: 1. Tuber faces forward to the Opening; 2. Push-in the two button locks; 3. Take down the plug.

### 4. Water-In

Pure water or distilled water is needed. Don't need to take down the plug on the Water overflow hole because it has a small hole there on.



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Press down the button on the Water-In hole.



Insert the water pipe with plug and add water via funnel.



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Add water until water runs from Water Overflow hole.

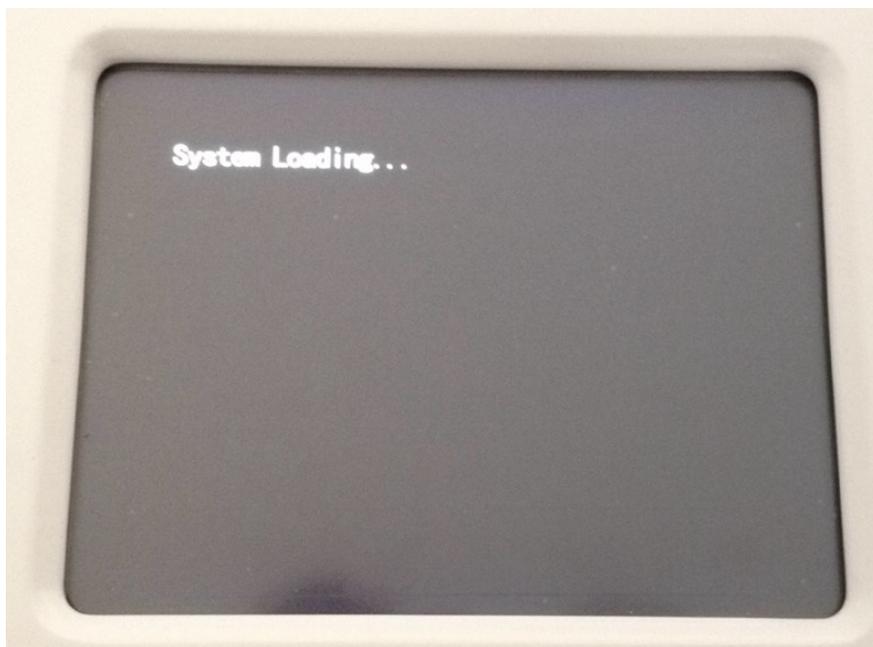
Press the button on the Water-In mouth, the water pipe pops out automatically.



## Chapter 3 Operating flow

1. Connect the power. Turn on the machine by the key switch. If the machine has nothing reacts, turn the Quick Stop.

You see System Loading.... Just wait for seconds

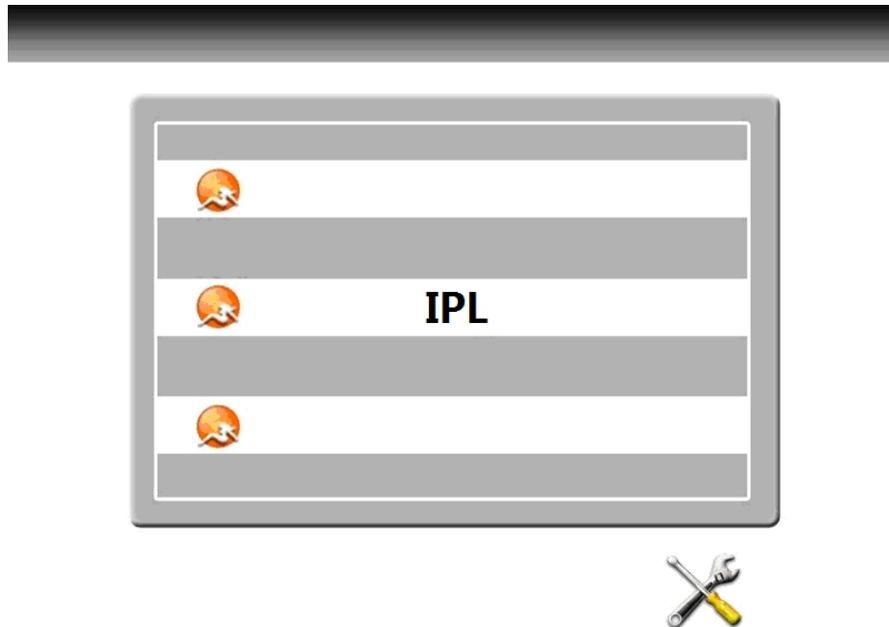


2. Then next screen. This screen saved for add customers logo. If no special requirements, there will be no logo here or the producer's logo.

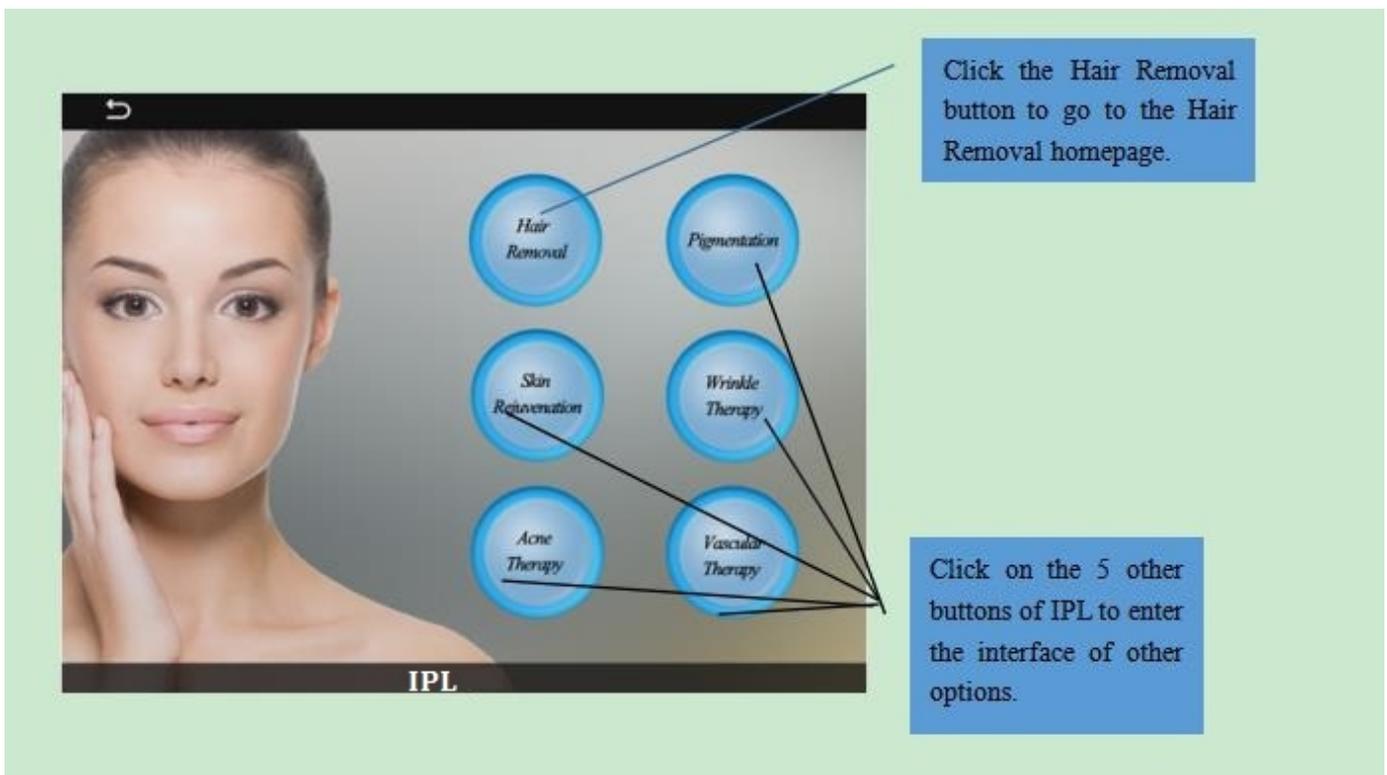


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3. Click the above screen, we are in:



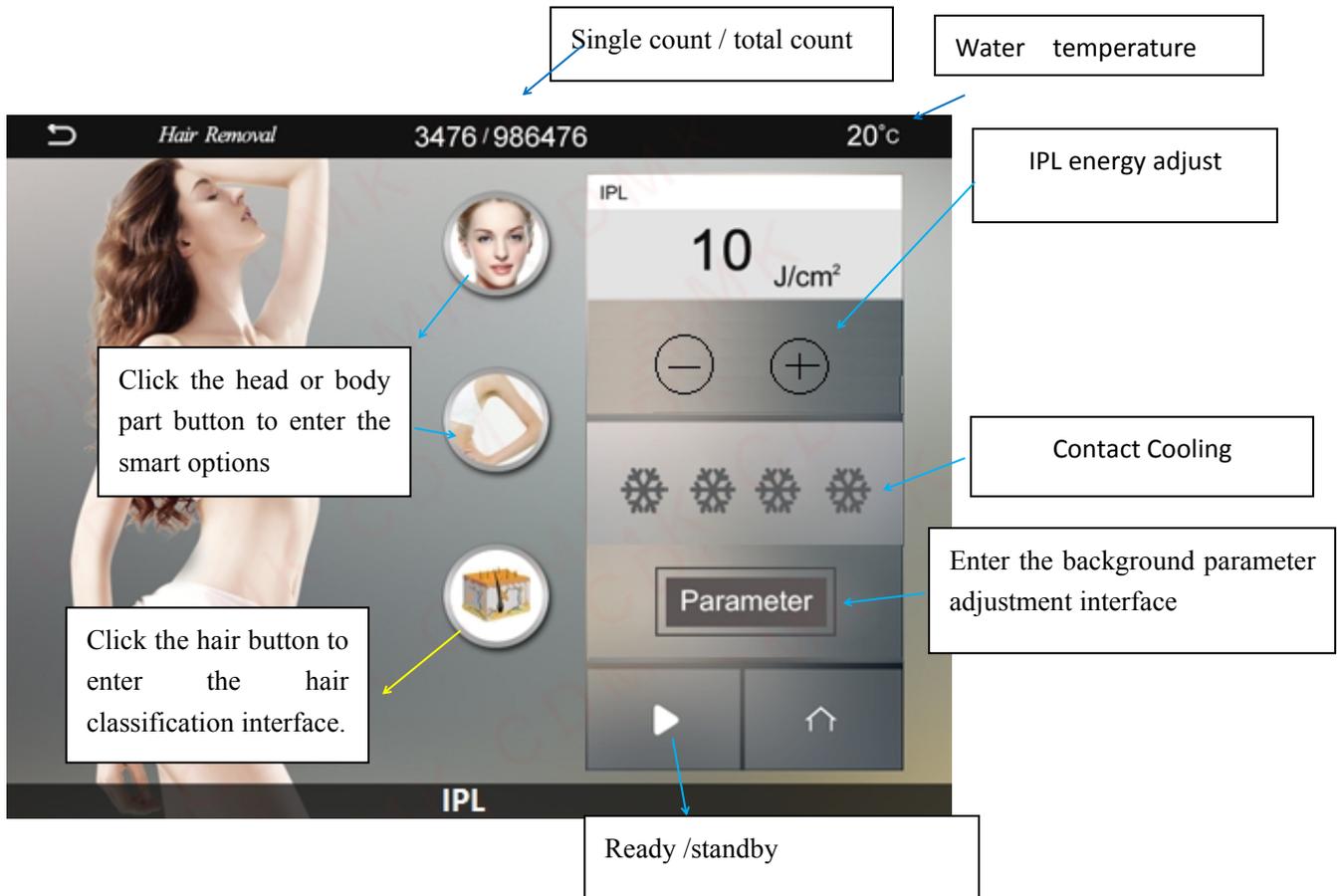
3.1, Click IPL, we go to:





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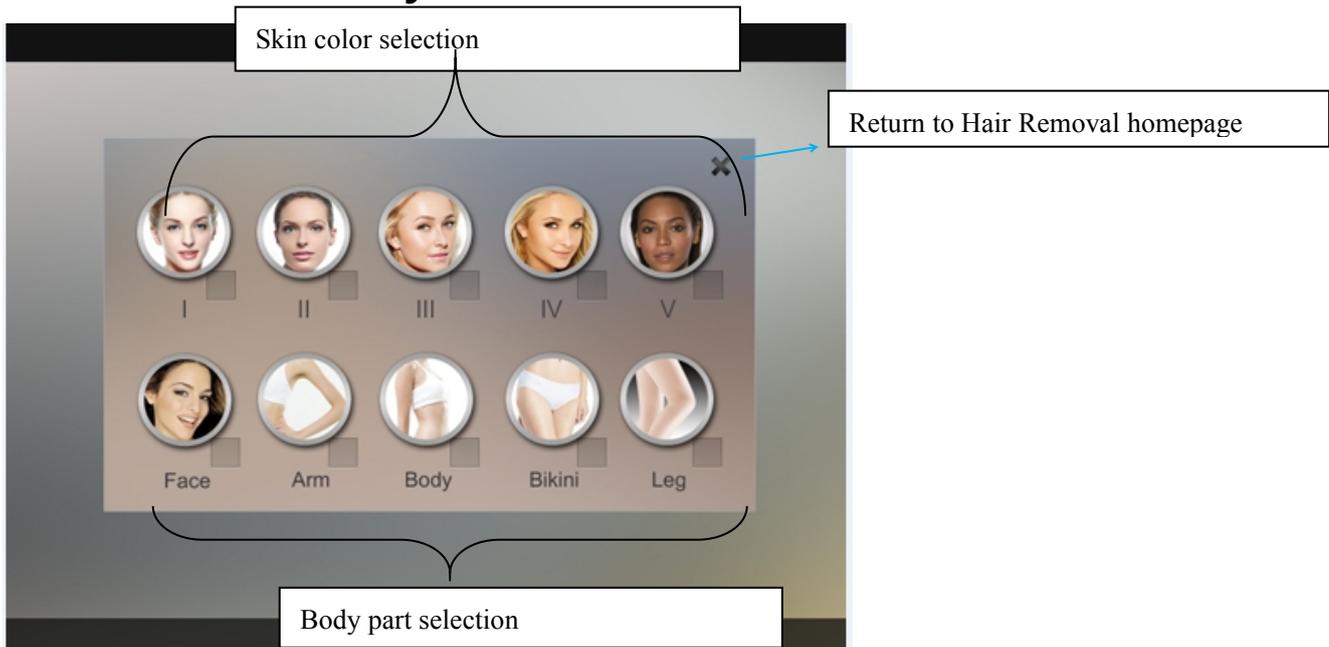
3.2 So you can select any function you want. Let's take Hair Removal for an example. Click Hair removal on the above screen. Here we go:



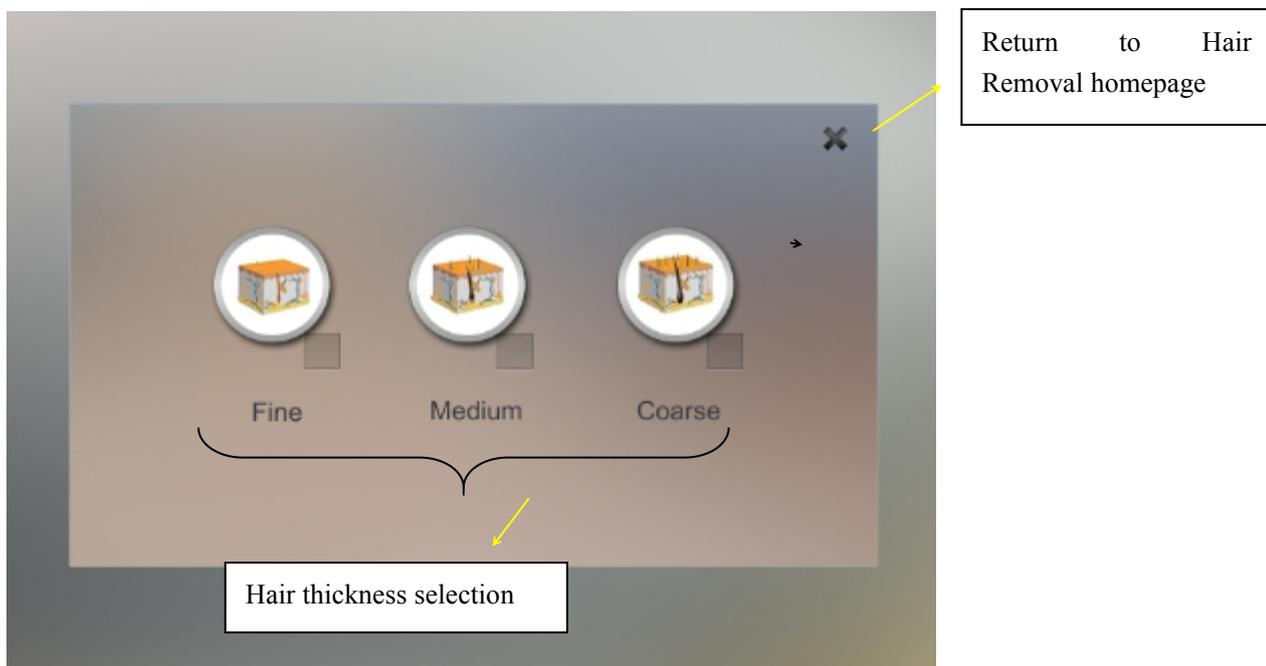
### 3.3, Smart option interface:



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## 3.4, Hair classification interface

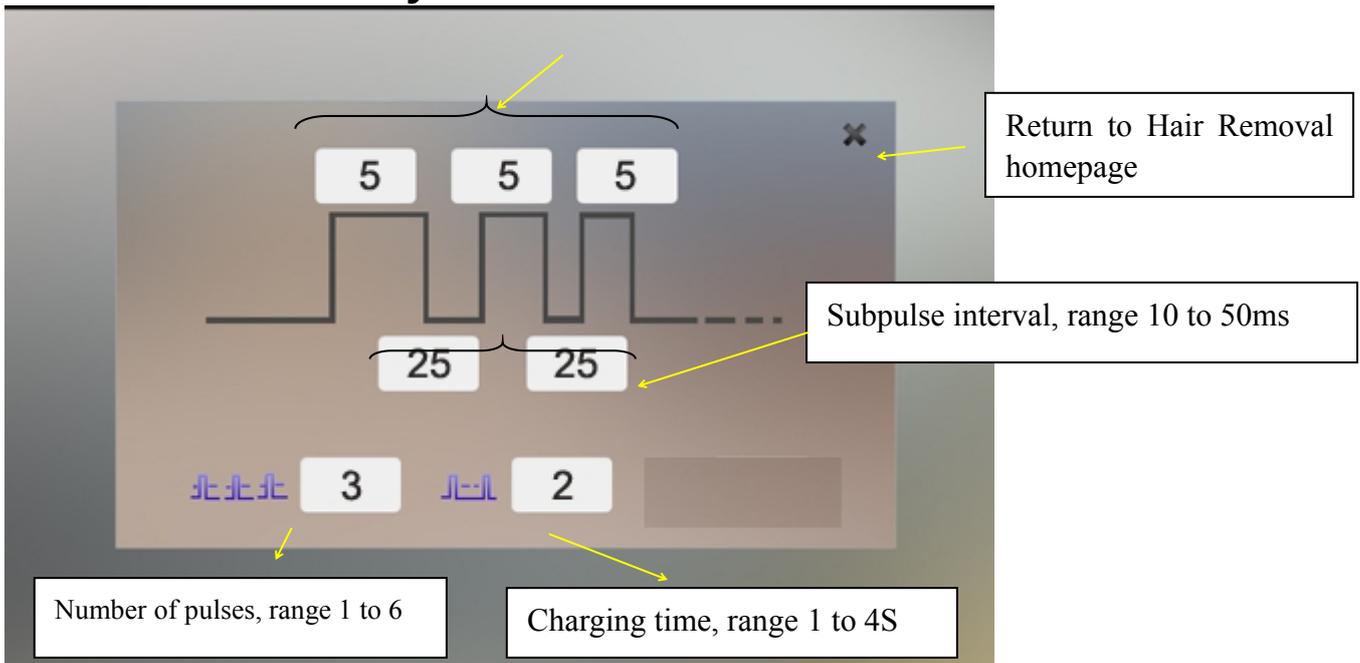


## 3.5, Click the button “Parameter” Background parameter adjustment interface:

From left to right: first pulse width, secondary pulse width, sub-pulse width, range 1 to 10ms



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## 3.6, Note:

After adjusting the parameters, click the button “▶” to “||” and keep for 2-3 seconds, the machine will automatically store the treatment parameters, so that you can use the machine directly to treat next time.

## 3.7 Parameter list.

IPL function	wavelength	Pulse duration (pulse width) /ms	Pulse (Subpulse) Interval /ms	Number of pulses	Energy J/cm <sup>2</sup>	
Acne therapy	430nm	5	10	4-6	2-14	3-5
skin rejuvenation / pigment removal	530nm	5	10	3-5	2-14	3-5
Wrinkle therapy/vascular removal	590nm	10	10	4-6	2-14	3-5
Hair removal	640nm	5	10	4-6	5-23	3-5



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Introduction of the screen:

**Settings Storage:** to store a group of personalized parameters. 3 files in each application.

**Pulse number:** it is seepage force. More number, stronger seepage force.

**Return:** to the screen to select functions

**Flash interval:** To adjust the discharge interval, the adjusting extension is 1~4S, you can touch different figure. It the interval time between the two adjacent flashes if keep pressing the switch on the handle.

**IPL energy adjustment:** to adjust the output energy of the light head. The adjusting extension is from 1 to 50 J/cm<sup>2</sup>. It can be changed during your treatment through clicking “△or▽”, “△”means up while “▽”means down.

**Contact cooling level:** to adjust the amount of snowflake from the left to right

**The first pulse width:** to adjust the first pulse width, the pulse width is the single pulse which be used, otherwise the first pulse width is the pulse width while many pulses be used. The adjusting extension is from 1 to 10ms by 0.1ms step in.

**The first pulse duration:** to adjust the first pulse width

**The first pulse interval:** to adjust the stay time between the first pulse and the second pulse, the adjusting extension is from 1 to 100ms by 1ms steps in.



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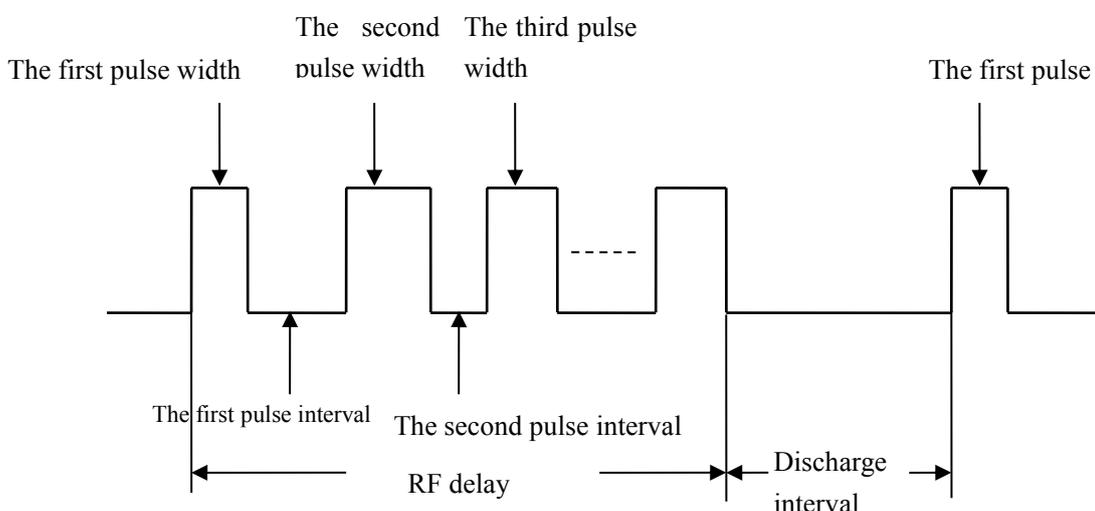
**The second pulse duration:** to adjust the second pulse width, it will not display when single pulse be used. The adjusting extension is from 1 to 10 ms by 0.1ms step in.

**The second pulse interval:** to adjust the stay time between the second pulse and the third pulse, it will not display when single pulse be used, the adjusting extension is from 1 to 100ms by 1ms steps in.

**The third pulse duration:** to adjust the pulse width between the third and the fourth, it will not display when the single pulse be used, the adjusting extension is from 1 to 5ms by 0.1ms step in.

The treatment parameter can be changed, and you can adjust the parameter on the pulse wave pattern. The folder should be clicked again for saving the parameter after you input the needed number. The number will not be changed if the number is too big.

### Sketch map of the pulse inputting



When you finish changing one value on the screen, you must click the value again to confirm it. Then you can go on



## Chapter 4 Operation for treatment

### Operation

#### 1. Shave the hair



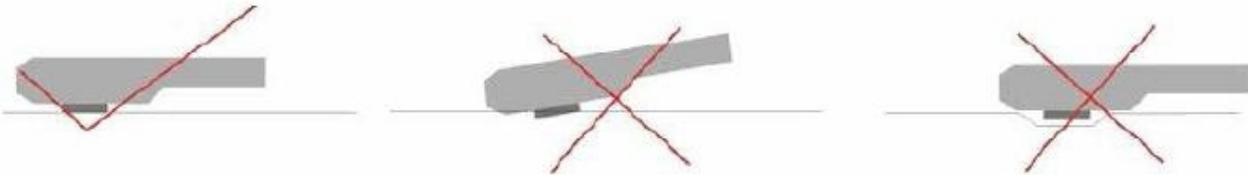
Daub ultrasonic Gel on the skin in 1-2mm thick.





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Please pay attention the way of handle during the treatment.



- Smear gel on the skin about 2 to 3 mm thickness before treating.
- Start the machine, processing step by step and adjust the suitable parameter.
- While exerting light pressure, approximate the treatment head perpendicularly over the treatment area. Ensure both metal slices of the head touch the skin naturally at the same time during treatment, If only one side metal slice touch the skin, it can be easily burnt skin. See above picture (1) Then can press the red bottoms to treatment. Before the treatment head leave the skin, please loose the red button first then treatment head can be off the skin.
- When the skin is in red after operation, coat the cool gel till the red is die out. Do not wash with water.

## A Principles adjusting of parameters.

The white skin and lighter Skin	1. Increase the power energy 2. Decrease the pluse delay=(pluse interval) more cooling
The daker skin	1. Decrease the power energy 2. Increase the pluse delay ( allow more cooling)
The lighter the hair /pigments	1. Increase the power energy 2. Decrease the pluse delay= ( pluse interval)
The darker the hair/ pigment lesion	1. Decrease the power energy 2. Increase the pluse delay= (pluse interval) more cooling
Fine Blood Vessels ( vascular lesion)	1. Increase the power energy 2. Decrease the pluse delay= ( pluse interval)
Thick Blood vessels	1. Decrease the power energy 2. Increase the pluse delay= ( pluse interval)cool more
The smaller the target size / lesion ( vascular)	1. Decrease pulse delay
The larger the target size/ lesion ( vascular)	1. Increase pulse delay ( allow more cooling )
Bony prominences (forehead, molar area, shin, bikini)	1. Decrease the power energy

## Chapter 4 How to use IPL?



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### 4.1 know its handle



### 4.2, How to use filter for the IPL handpiece:



**choose filters according to its function:**

#### **Insert a filter for the IPL handpiece:**

This is 4 filters: 430/530/640/690nm

430nm is for acne

530nm is for skin rejuvenation, freckle and vascular

640nm is for light hair

690nm is for dark hair

**Choose suitable pulse number, pulse width and pulse delay time, and set up the energy from low to high, meantime observe the color change of the skin. It is OK when the skin becomes a little red temporarily.** Setting parameter is very important, which should be different according to different patients. Parameters should be adjusted in accordance with skin reflection during the treatment. The principle is as the following:



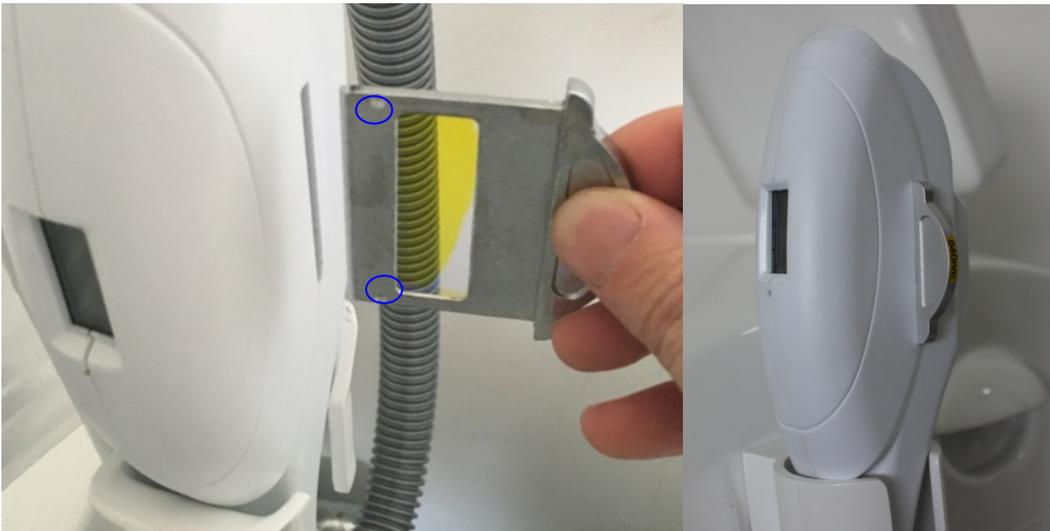
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1. The thicker skin and the pathological skin spread deeper need longer pulse width and higher energy.
2. The darker, thinner skin is, the more sensitive skin is, and the lower energy should be used.
3. When to operate on the part with less subcutaneous tissue, low energy should be used at first. With more times of treatment, properly enhance 1-2J/cm<sup>2</sup>.

### 4,3 install filter

Choose a right filter and install it onto the handpiece

There are 2 grooves here. Just insert the filter in this direction as shown in the picture.





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When all the settings are ready, click “”. You can hear “PA,PA PA”. And at the same time the light in the handpiece is on.

### **Management on the Skin Before and After Treatment**

The hairs on the surface of skin should be shaved before the hair removal operating. And the couplant, like cold gel, should be daubed averagely on the skin. Cold compress with cold towels on the skin in 20-30 minutes after a treatment is better to ease pain and inflammation. In this situation, the aloe vera gel can be daubed to make recovery. During operation, the using of SPF15-30 sunscreen cream is suggested for against sun burnt. Also having vitaminB<sub>1</sub> could reduce the sensitivity of skin to light. The photonasty medicine and food (like celery, leek, caraway etc.) should be prohibited. The person with sensitive skin is prohibited to eat food that may cause skin allergy. Dryness of skin may be happened among part of patients, because absorbing capability of skin is getting stronger and body metabolism is getting faster after operating. So the complementarity of water and nutrition by skincare is necessary after operation. For thorough effect, the pigment that related to incretion should be treated with matching medicines.

### **Treatment Period**

(The treatment period as follow is suitable for all therapy programs)



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Each treatment lasts 20 minutes. The interval of every 2 treatments is 3 weeks. 5-6 treatments are a period. Why there are so many treatments? It is to reduce secondary reaction while to gradually beautify skin. In addition, we can start our work and life soon after a treatment with IPL, which is in accord with modern life. Treatment time and times are up to the size and degree of pathological area. Each treatment produces remarkable improvement.

### **Complicating disease**

Seldom complicating diseases arise under the normal operation .The most familiar complicating disease is temporary rubeosis on skin, which needs no cure and would become normal in several hours after a treatment. Water blister, scab or purpura may appear on the treatment area of a very few of patients after a treatment, which is caused by overhigh energy or repeated overlapping of light spots. The area of water blister, scab or purpura should be kept dry and clean and it will disappear in 2 weeks. Because intense light sensibility for different people is different, pigmentation may be caused on a very few of patients. The pigmentation would be absorbed by our body in 3-9 months. Meantime, patients with pigmentation should try not to be under the sun for a long time and can have vitamin C and vitamin E to accelerate color metabolism. Part of treatment area, when a treatment is on, may feel like being shot by a rubber band. Most of the patients can bear it. No need to use anesthesia. For those who are sensitive in pain, narcotic can be sprayed on the treatment part before treatment.

## **Chapter 5 Taboo Instructions**

### **1. Taboo**

The apparatus cannot be used on people as follows:

- i. Pregnant woman, people with hypertension, heart disease or diabetes;
- ii. People with photoallergy;
- iii. Not be used on the open wound;
- iv. People cannot be exposed under intense light;
- v. Female in menses;



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- vi. People who are using shall stop using the products getting effect instantly for 1-3 months before the operation by this apparatus.

### 1. 【Notice】

1. There is dangerous high voltage, please keep all faceplates and cover boards close;
1. The treatment head should be on the pothook when not in use;
1. The treatment head shoots intense pulsed light. Please keep directing it only at operating part;
1. Confirming that all operators and patients who may be exposed under the intense light are taking safety measures (no matter the light shoots from the treatment head or is reflected). All operators shall wear goggle provided by our company;
1. Never look directly at the intense light even wearing goggle.

### 1. 【Warning】

**If an operating part receives superfluous light, it may cause heat injury, and then tissue may be hyperplastic and (or) atrophic and (or) pigments appear on the skin.**

## Chapter 6 Introduction of IPL

### Concept of IPL

IPL skin rejuvenation is an innovational technology, which can cure various benign pathological changes of skin, such as age pigment of cuticle scar, birthmark, inaesthetic vein or blotch, and remove unwanted hair. To achieve satisfying and extraordinary effect, the apparatus provides safe and nonintervention method to suit different condition of skin, which is called IPL skin rejuvenation.

### B. Principle of Treatment

#### a) Biological Stimulation

Actinism, produced by Intense Pulsed Light operating on the actinic skin, makes the structure of molecules in the collagen fibers and the elastic fibers in the dermis layer change to restore original elasticity of skin. Besides, photothermy produced by above operation boosts blood vessel function, improves the circulation, so as to achieve dispel wrinkles and shrink pores.

#### b) Pyrolysis

With Intense Pulsed Light operating on the skin, for reason that the pigment agglomerate



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pathological tissue is much more than that in normal skin tissue, the temperature after absorbing light is higher than that of normal skin. The temperature difference blocks out the pathological blood vessel leading to cracking and decomposition into fragment, part of which is raised from the cuticle, and the other part will be decomposed into small particles, which can be swallowed by macrophage and discharged out of human body with the lymphatic system. Normal skin will not be hurt, because normal skin tissue absorbs little light energy.

### c) Remove hair

Intense Pulsed Light operates on hair nipple and acts on pigment therein without any impact on its hair follicles or sweat glands. The cycle of a hair is divided into three periods: growing period, maturity period and dormant period. The growing hair in a can be dispelled completely once (Medically, a kind of small villus hair, which is white and not harmful to beauty, is called Juemao in Chinese)

### C. Sphere of Application

- a) Speckle: chloasma, sunburn, butterfly rash, gravidity speckle, lead and hydrargyris toxicosis speckle, skin changing speckle, age pigment;
- b) Facial vascular lesions (Telangiectasis): threadlike facial vascular lesions (Telangiectasis), red face;
- c) Skin rejuvenation: whiten skin, dispel yellow, shrink pore, dispel wrinkle, red face caused by honey layer becoming thin after skin changing;
- d) Hair Removal: remove unwanted hair;

## Chapter 7 Consumers' manual

### 1. Safety of IPL

IPL skin rejuvenation & hair removal apparatus is high-tech medical equipment, which safely dispels all kinds of facial flaws and unwanted hair on any part of human body. As long as an employee after training appropriately operates and maintains the apparatus, it is safe to operate. Security information in this Chapter can be understood completely by all operators or other staff or adjuvants. And the most important thing is to consider the safety for patients, operators as well as the other staff. Security is the first item considered in designing the IPL skin rejuvenation & hair removal apparatus.

Part of its security measures is as follows:

1. Self-inspection system is activated instantly when the apparatus is turned on and the



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system will monitor the circuit continuously in the operation of the apparatus;

2. Filter / light guiding crystal are used and transmitted onto skin. Impulse light can only shoot from the front of the light guiding crystal;
3. Independent safety circuit can be cut off when the intense light is too strong;
4. Using the red emergency switch to quickly cut off power supply if need;
5. Using the key switch, the apparatus can only be turned on by the appointed person;
6. High-quality molded shell is to prevent electrical leakage caused harm to person.

### **【Warning】**

Any wrong operation of intense light electropult can bring harm to a person. Our product may generate high voltage. Every operator of intense light electropult shall keep on the guard and take necessary measures according to this brochure.

Safety of patients: safety of patients mainly relies on bridle-wise physician and appropriate disposal therapy room. Patients' accomplishment is also important. They shall learn the principle of treatment. Patients' eyes shall be protected effectively when receiving intense light treatment.

Safety of operators: operators may contact intense light in operation. Protection against corresponding wavelength shall be taken, that is, operators shall wear intense light goggles.

Treatment room: that intense light is using shall be marked remarkably.

### **【Primary Warning】**

To guarantee safely use of the apparatus, prevention measures shall be taken. Please read advises as follows:

- A. Only technicians authorized by can examine and repair the apparatus, especially for the inside of the apparatus, including inside regulation for electricity source, optics organ and intense light head and so on. Please be advised that there is high voltage inside the apparatus;
- B. Voltage rating shall accord with that in your country (220V/108V or 220V/330V);
- C. The apparatus cannot be maintained unless it is off and power supply is off. Maintenance with electricity on may cause harm to human body or destroy the apparatus;
- D. Light guiding crystal shall keep clean. Coupling glue shall not get into inside light head;
- E. Don't turn the apparatus on when light head makes water. If it is on in this situation, turn it off as soon as possible.

### **【Warning of Intense Light】**



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- A. Intense light may injure eyes and bring fire. All necessary safety measures shall be taken when using the apparatus;
  - B. Superfluous light may bring heat injury to skin and then cause hyperplasia or unwonted pigment;
  - C. Never look straight at intense light from the light head even wearing goggles;
  - D. Don't direct the light head to the air and shoot. The treatment head shall be put onto the pothook if not used and it shall be pointed at operation part when used.
2. **【Safety of Electric and Mechanism】**
- A. Keep all the faceplate and cover board close, or danger may arise;
  - B. There is high voltage inside the apparatus, which may still exist on some elements even when electricity is off. Therefore, nobody can remove the cover board barring technicians sent by our company;
  - C. When maintaining the apparatus, don't turn the power on, don't remove the cover board, don't keep it unattended;
  - D. The apparatus is more than 40 kg. Bodily injury may arise if moving it in a wrong manner. It has a good balance and is mobile, but shall only in carefulness and slowness way. Especially, don't move the apparatus while the treatment head is in hand;
  - E. Land cord of the three-cord power supply of this apparatus connects to the land, which is very important for safety.
- 【Fireproofing】**
- a. An object heats up while absorbing light energy. Effective measures shall be taken to prevent from inflaming tinder inside and near the treatment area;
  - b. Tinder, such as alcohol or acetone shall not be used when disposing skin before surgical operation. Soapy water or medical distilled water can be used if necessary;
  - c. If treatment head or any other parts of this apparatus are disinfected with alcohol, they shall not be used before they are complete dry.
- 【System Fire】**
- a. The apparatus is equipped with some safety devices, whose position and how to work shall be known by all staff in operating room;
  - b. Key switch: it is used to turn on and off the power supply. Only the keys our company provides can be used on the apparatus;



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- c. Emergency switch: it is like a red mushroom and can turn on and off the apparatus in an emergency. When it is down, the power is cut off instantly no matter what status the apparatus is in. It will be up when to turn it deasil, or the apparatus is still power-down.

### [Self-inspection]

When the apparatus is power on, the system circuit will starts self-inspection. In this situation, keep the apparatus running in proper motion 5 minutes, and then take the next step.

### [Apparatus Level]

1. Electric shock protection: level one, level BF;
2. Antiseptic liquid: common;
3. The apparatus shall not be used under the environment of mixture of inflammable anesthetic and air or laughing gas;
4. Operation mode: successive

### [Listing of Apparatus]

The apparatus listing is as follows:

A. Mainframe	one
B. Standard treatment head of intense light	one
C. Special goggle	two
D. Manual	one
E. Water pipe	one
F. Power core	one

### 3, [Installation Requirement]

Checking whether the spot to arrange for the apparatus accords with the requirement stated in this section before unpacking the apparatus' package;

#### A. Requirements for electric

2. Voltage rating will have been set according with that of the location where the apparatus will be arranged. Single-phase 230Vac±10%,16A, 50/60Hz.
3. Land cord (yellow/green) in the power cord connects the apparatus with the land, which is very important for safety;
4. Input power shall not transients; current shall not get surge. Therefore, the apparatus



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cannot share its transmission line with elevator shaft, air condition system or high-power motor and so on. Our company recommends that the apparatus should use separate power supply and separate air switch;

5. 6A breaker, the main protecting device, is equipped. The power supply is off instantly while the breaker is broken.

### **B. Requirements for Environment**

- i. Air quality: there should not be corrosive particles (e.g acid), which may damage the surface of wiring, optical components of electrical components. Dust should be as little as possible in the air. Dust particles can absorb light energy and metal particles may damage electrical components;
- ii. Temperature: indoor temperature should be maintained at 20 °C -25 °C, and the relative humidity cannot exceed 80%. When the apparatus works for excessively long hours, it distributes 200 W quantity of heat. Therefore, an air conditioning had better be installed indoors to reduce the indoor temperature;

### **C. Remotion**

When to remove the apparatus, please take the steps as follows:

- i. Cut off the power cord;
- ii. Put the treatment head onto the pothook;
- iii. Loose the truckle brake;
- iv. Slowly draw and push the handle on the apparatus. Never push the apparatus forcibly, or inside parts may be broken due to exquisite shake.

[Installation] Under the supervision of our company's technician

### **Operation and Technique**

#### **A. Operation flow**

- a. Confirming the treatment time and ask the patient to fill the register, and then clean his/her face;
- b. After cleaning face, cover the patient eyes with a humid cotton sheet or paper towel, turn on the apparatus and confirm the water circulation is in a right way;
- c. Cleanly shave off the hair on treatment part; if shrink pores, clean the pores firstly;
- d. Smear condensation glue about 2mm in thickness on the patient's either side of his/her face; adjust parameters in proper value;



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- e. After adjustment, hold light head, which should be downwards; shoot in the air two times; have an experiment on normal skin to see whether there is change and ask for the patient's feelings;
- f. If treatment part does not become red and there is no feeling of heat and sting, increase the energy. The increased value shall not be more than 2J every time. Shooting the light two times every time after adjusting the energy and one light spot should be lapped at the location of 1/3 of the other light spot. In this situation, it is normal that the treatment part is reddish for 3-5 minutes. It is at the best if the patient feels stinging and heated.
- g. Operating on the two cheeks firstly; when it is the turn for forehead and circumference of mouth, the energy value should be reduced by 10%. If canthus dose not become red when dispelling wrinkles, do it again 2-3 times;
- h. Confirm the effect after the first operation. If not satisfying, another 1-2 operations can be done after the red and heat fade away, and then turn the apparatus off;
- i. If do breasts enlarging, only make them become reddish, sting and heated. It is normal if the breasts feel swelling pain, just like development in adolescence after operation;
- j. Keep the condensation glue on face for 20 minutes and then wash it away;
- k. Fill operation parameters and then ask the patient for signature.

We can adjust all parameters on this interface. When the parameters we need are ready, operation can start.

## **Chapter 8 Clinic Application Guide**

(1) Outstanding features of IPL skin rejuvenation technology:

- a. Whole face treatment to improve the skin on face wholly;
- b. Need no shutdown or rest;
- c. Short treatment time-only 15-20 minutes every time;
- d. No side effect.

(2) How the treatment with IPL skin rejuvenation goes:

Normally, condensation glue shall be smeared onto the treatment part and the operator shall wear deep-color goggle to guard against intense light 10-30 minutes before the treatment. Then the treatment can be on. Put the light guiding crystal of the treatment head



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onto the treatment part and shoot the pulse light. The patient may feel slight being nipped, just like being struck gently by elastic. It needs not anaesthesia. The whole period of treatment includes 4-6 treatments in order to achieve the best effect, generate the least side effect and get satisfaction. Each treatment takes 15-20 minutes.

### **(3) How many treatments shall be taken to achieve satisfying effect?**

The times of treatment is subject to the size and pathological degree of treatment part. Normally, the whole period of treatment includes 4-6 treatments. Remarkable improvement can be seen after each treatment.

### **(4) Why repeated treatments are required?**

The purpose of dividing the whole treatment into several small treatments is to lower the danger of side effect while the skin is improved. The most important thing is that patients need not to leave from work. They can go to work immediately after the treatment. That is the treatment mode that modern people are seeking.

### **(5) Is IPL skin rejuvenation & hair removal safe or will it hurt skin?**

This technology is a method of non-exfoliation. It provides non-interposition type to adapt different skin. Therefore, it is safe and will not cause any damage to skin.

### **(6) Is nurse required for skin after a treatment?**

No special nurse is required. But insolation and irradiation by ultraviolet radiation shall be avoided in 24 hours. The interval between every two treatments is 21-45. The improvement of the whole face can be seen after a treatment. All facial flaws, enlarged pores, matted skin and other abnormal status caused by insolation and light aging can be improved remarkably or removed. The IPL skin rejuvenation can also improve skin's deep level to make the skin smooth and rejuvenated and can be used on neck, breasts and other parts of human body.

### **(7) What differences between the skin rejuvenation technology and traditional technology?**

The techniques have seen great changes over the past decade. In the beginning, the grinding way and chemical deep-seated exuviations were use, then laser deep-level wrinkle dispelling. Although the methods above had a certain effect on some parts of skin light aging, patients usually needed a rest from work and oppressive pain had to be suffered. The potential side effect and shutdown brought a loss to patients' revenue.

### **(8) Features of IPL:**

At present, some types of laser can be used on cure brown splash. Some others can be used for brown splash and dispelling facial wrinkles, but there is no other technique which can achieve the effect used by IPL skin rejuvenation, which can improve pathological skin



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and the skin's structure on the premise that there is no disturbance on the busy urbanism. IPL can cure the whole face to bring much better effect than common method. The technique makes skin improved gradually and remarkably only in 4 months-5-6 treatments. Patients and beauticians can get great satisfaction with very low risk.

(9) Can IPL remove hair forever? Is IPL treatment affects perspiration negatively?

Pulse light of special spectral coverage delivered by the apparatus can penetrate skin and reach the root of hair follicle directly. Melanocyte in hair follicle absorbs the light with specific wavelength and makes hair nipples generate heat. In this way, hair nipples are broken selectively. Accordingly, hair is removed and skin is rejuvenated while there is no damage to ambient tissue.

For reason that there is a space between sweat gland and hair follicle and sweat gland has no melanocyte therein. Therefore, sweat gland cannot be hurt and perspiration is not affected negatively.

(10) Will the pathological changes recrudescence?

Pathological changes of transmissibility will not recrudescence, i.e. freckle and facial vascular lesions (Telangiectasis) of transmissibility; pathological changes caused by maladjusted increment may recrudescence, which needs patients to improve their diet structure and law of life. Unhairing is permanent.

## Chapter 9 Maintenance Manual

### Daily Maintenance

[Notice] Our customers can only take the steps stated in this chapter for maintenance. Only technicians authorized by our company shall make other repairs.

#### 【Caution】

1. The apparatus shall be turned off and the power supply shall be cut off. Maintenance with electricity on may injure both of the user and the apparatus;
2. Cleaning the surface: The apparatus shall be cleaned every time. Wet soft cloth or mild scour may be used to wipe the surface of the whole apparatus;
3. Cleaning the light guiding crystal: Keep the light guiding crystal clean all the time. It shall be cleaned every time after using it. When to clean it, dry it with clean soft cloth firstly; secondly, clean it with soft cloth dipping alcohol. At last, wait for its dryness or wipe it with saline water;
4. Water: Water in the system shall be changed once a month. It must be purifying water or distilled water;



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5. Energy adjustment;
6. Steps for changing the treatment head:
  - 1) Turn off the system switch and cut off the electricity cord to avoid damaging the apparatus;
  - 2) Open the small square cover at the backside of the apparatus;
  - 3) Loose coupling of treatment head;
  - 4) Take treatment head out;
  - 5) Tightly connect a new treatment head with the apparatus;
  - 6) Restart the apparatus;
  - 7) The new treatment head can be used;
  - 8) Please contact the engineering department of our company if you have any questions.

Part of its security measures is as follows:

- a) Self-inspection system is activated instantly when the apparatus is turned on and the system will monitor the circuit continuously in the operation of the apparatus;
- b) Filter / light guiding crystal are used and transmitted onto skin. Impulse light can only shoot from the front of the light guiding crystal;
- c) Independent safety circuit can be cut off when the intense light is too strong;
- d) Using the red emergency switch to quickly cut off power supply if need;
- e) Using the key switch, the apparatus can only be turned on by the appointed person;
- f) High-quality molded shell is to prevent electrical leakage caused harm to person.

### 【Warning】

Any intense light device and harm the people if you operate improper. The equipment can exert high voltage, so people must pay attention when operating the device and take the necessary protection measures.

Sufferer: The safety of the sufferer depends on the high qualified director, and the operating room which decorates properly. The cultural quality of the sufferer is also important, they must know well the treatment principle, and the eyes of them should be protected.

Operator: The operator may contact with high-intension light, and she must wear special safety glasses.

Operating room: You must paste the notice that the high-intension light is working.

【Main Warning】 In order to assure the safety of equipment, you must read the warning items



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following:

- a. Anyone mustn't examine this apparatus except the technician who has been authorized by ESC. Attention that dangerous high-voltage inside the machine.
- b. Make sure that the specified voltage in accordance with the voltage in your own country.
- c. You can maintain this machine only after you turn off the machine and power-line. It can make personal and equipment damaged.
- d. The light head should keep clear and prevent the gule from permeating into the light head.
- e. You must turn off the machine if you find the light head seeping water.

### 【Warning about Intense Light】

1. The intense light can hurt the eyes can cause fire, so you must take the protection measures.
2. Radiating excessive light to the cure part of the body can damage the skin and make the usual pigment increase.
3. You can't see the light directly.
4. Don't radiate the light to the skin. You should put the head on the hook hitch.

### 1. The safety of electricity and machinery

- i. Keep both panel board and blind flange closed. It's dangerous if you open the blind flange.
- ii. There is still the rest electricity even if you disconnect the mains lead, so you can't take apart the machine except the technician.
- iii. You can't open the electricity when maintain the equipment.
- iv. The equipment weight more than 40 kilograms. You must pay attention when move it. Don't pull the machine by light head.
- v. It is important for the earth wire to touch the ground.

### 【Prevent fire】

- a. The temperature becomes high if object absorb the light, so we must take measure to decrease the number of the inflammable material.
- b. Don't use the inflammable materials, such as ethyl alcohol. If necessary, please use the soap-suds and distilled water.
- c. The light head must parch when use it.

### 【System fire】

- A. The equipment has some safety device; all the operators must know the instruction manual.



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- B. Key switch: The function of the key is to turn on or turn off the current source; all the keys must be provided by our company.
- C. Hurry-up switch: The red mushroom switch can turn off the source. It cut down the current whatever condition it should be. Turn it in clockwise direction and the equipment can work again.

Electric shock protection: class one and class BF

Anti-corrosion: common

Don't use the machine in the environment with flammable anesthetic and the mixture of gas and nitric oxide.

Operation way: continuation

## **Chapter 10 Knowledge about Skin**

### **➤ More Advantages. It can improve various skin flaws:**

The treatment mode of IPL has breached the limit of traditional partial focus treatment, which can cure the whole face. The E-light apparatus can also cure the diseases as follows: capillary vessel expanding, erythema, pigment, petty wrinkle, sunburn, brown splash, enlarged pores, whiten skin. The treatment results show that over 75% of skin of 49% of patients has been improved. Facial erythema (75% of patients) and capillary vessel expanding (49% of patients) have been improved. The improving rate of wrinkle of 73% of patients has reached 25%, wherein the improving rate of 36% of patients have reached more than 50% and the improving rate of facial wrinkle and enlarged pores of 76% of patients has reached over 50%. In clinic reflections, skin structure, petty wrinkle, atactic pigment, enlarged pores and capillary vessel expending of all patients are improved.

### **2. Treatment on the whole face to improve skin's character in order to resume skin's flexibility:**

New collagenous fibre produces smooth structure: pores become large, petty lines and wrinkles become less and can be reduced to utmost-to make skin more flexible.

### **3. Excellent results after 14 months and positive appraisal from patients.**

Many treatment cases show that the long-time data of treatment with IPL technology is 14-18 months of patients with facial erythema and red face after treatment. The status of 80% of patients is the same as that after their last treatments. Few people get purpura edema. Most people's convalescence is 1-5 days and two treatments with an interval of 21-45 day leads to better curative effect. There is no report about scars in all of cases. The IPL technology indeed provides safe treatment of nonintervention and non-exfoliation for people with love of beauty and is accepted by general suffers.



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### 4. E-Light Skin Rejuvenation is a nontraumatic technology:

Traditional skin rejuvenation technology adopts the grinding way and chemical deep-seated exuviations. Then laser dispelling deep-seated wrinkles method followed. Although these methods have a certain remedy for some parts of skin aging treatment, patients usually need a rest from work and oppressive pain is accompanied. Potential side effect and shutdown seriously disturbs normal life and work. Photon skin rejuvenation adopts the treatment of nonintervention and non-exfoliation to rejuvenate skin with low-density energy. Accordingly, this technique brings no pain, no side effect, no shutdown and wins higher satisfaction of patients.

### 5. What is freckle?

It is a kind of small brown or filemot pigmentation on face and is autosomal dominant inheritance, which is serious especially in summer. The development of pathological changes is related to solarization. Freckle occurs mostly to women and emerges in childhood after the age of 6-7 usually. It becomes obvious in youth. Skin lesion due to solarization gets serious in summer but mitigatory in winter. Skin lesion is canary or filemot or brown splash, which is rotundity or elliptical or irregularly shaped. Freckle is concentrated mainly on face, especially from eyes to cheekbones.

### 6. What is chloasma?

It has another three names, which are butterfly spot, cloasma hepaticum and soot-black macules in physic. It is common and a frequently encountered disease for women. The incidence of the disease becomes more obviously and seriously for the past few years.

In the beginning, chloasmas are in light color. They may be multiple but gradually syncretize into spot in different sizes and shapes with clear borderline. They intersperse symmetrically on exposure parts, usually on cheekbones, forehead and cheeks. They have no subjective symptom.

Chloasma has three types according to their location: it is called superficial type one if it locates on cuticle, shallow-seated type if deep in cuticle and deep-seated type if in corium. This classification is mainly related to treatment. The deeper the location is, the longer the treatment time is and the more difficult the treatment is.

Aetiological agent is very complicated. It may occur to healthy women from youthhood to climacteric. The incidence rate of chloasma caused by oral contraceptive reaches over 80%. Some chronic diseases, especially female diseases of reproductive system, such as menoxenia, adnexitis, acyysis, ovarian cyst and hysteromyoma, may cause chloasma. In addition, chloasma may be caused by other diseases, such as hepatopathy, chronic alcoholism, thyrotoxicosis, tuberculosis and viscera tumor. Many kinds of medicine may cause chloasma. It also can be induced and deepened by sunshine and hereditary factors, sleep disorder, psychic factor and so on are somewhat related to chlosama.



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## 7. What is acne?

Acne is a familiar hair follicle thylacitis in youthhood. It is also called acne vulgaris and commonly referred to as whelk (Qingchundou in Chinese). Acne is usually found on face, sometimes looks like papilla, blain and so on. Sebum is often accompanied and overbrims. The pathogeny has not been clear yet but may be formed synthetically by various factors.

- a. Androgen-mediated lipid overflow - androgen and its metabolites, such as dual-oxygen copper and sulfuric acid dehydrogenation Cremaster epidermal-steroidal copper increase, which strengthens the activity of sebaceous gland. Secretion of patients with acne skin is higher than that of normal people.
- b. Funnel of hair follicle keratosis - acne patients' keratosis of of hair follicle funnel boosts up and its epicyte becomes thick and dense, so it is difficult to drop off. It has not been clear yet why the keratosis of of hair follicle funnel boosts up, but it may be related to free fatty acids in the cortex. In addition, the amount sebum linoleic acid of patients with acne is less than normal, which might be another reason.
- c. Acne propionibacterium increases- acne propionibacterium belongs to anaerobic organism and is a resident bacterium. Why it increases may be related to funnel of hair follicle keratosis, sebum discharge blocking and relative anoxic environment.
- d. Inflammation - acne propionibacterium excrete dissolved lipase, which will decompose the triglyceride into glycerol and free fatty acids. Glycerol and free fatty acids further stimulate gland wall keratosis, so the adenovirus mouth is blocked. Experiments prove that carbon atoms containing 8-14 can penetrate hair follicle and goes into corium and then causes more obvious inflammation. In addition, acne propionibacterium can not only produce dissolved lipase but also prolease, hyaluronidase and some chemotactic factor activating complement, which all can bring inflammation of the hair follicle sebaceous gland and papilla, blain, nodules and so on.
- e. Acne caused by cosmetic – (a) improper cosmetics are used, i.e. people with oily skin use oily cosmetics, making the hair follicle mouth metabolism sluggish. Hair follicles are blocked by hard, dense keratose substance, which leads to expand, these keratose substance forms keratose bolt, plugging in the hair follicle mouth. Accordingly, acne arises. (b) Some cosmetics containing substance of particles, such as a great deal of superfine titanium pigment, whose particles are agglutinated with sebum or stroma. It is easy to plug holes of hair follicle and causes acne. And young people indulge in the cosmetic, making light acnes serious.

Moreover, inheritance may be an important factor causing acne, and orally taking medicine containing iodine, bromine, cortex steroid and so on can make acne more seriously.

## 8. Six inducements making skin dark and spotted



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Specifically, inducement causing skin black and spotted mainly is:

- a. The arch-criminal-ultraviolet radiation;
- b. Some sensitive food, such as animal liver and kidney, oyster, shrimp, crab, legume, walnut seed, currant and so on;
- c. Drinking and smocking;
- d. Some diseases;
- e. Some medicine: quina, tranquillizer containing chlorpromazine;
- f. External cause: rubbing skin hard when having wash.

### 9. How wrinkle come?

Wrinkle is the result of skin aging. Wrinkle is synthetically formed by internal cause, external cause and other factors.

- a. Internal cause: in youth, skin is rich of moisture and all kinds of glands' body fluid are excreted noticeably. Skin is at its best time at this time. Wrinkle is not easy to arise. However, wrinkle will come and temporarily exist if skin is of over hydropenia for reason that skin is not taken good care or diseases arise. If moisture is makeup to skin once, the temporary wrinkle will disappear. But in middle age, the horny layer's ability of keeping moisture declines. Sebaceous gland is excreted less. Elastic fibers in corium are of denaturation and ruptured. Adipose layer decreases.... All these factors lead to skin's change. Wrinkle is the symbol of skin aging, which can be seen with our naked eyes.
- b. External cause: skin is the surface layer, which receipts sunshine, wind, and dryness. These are all factors making more and deep wrinkles. We all know that people living on Qinghai-Tibet Plateau all have deep wrinkles on their faces. This is brought about by wind and sunshine. Ultraviolet radiation in sunshine is one of the reasons for skin aging and wrinkles. Therefore, people should prevent skin from being sunburned. Sunburn prevention and moisture keeping are both important.

In addition, too much make-up is a direct harm to skin. All cosmetics are chemical. Although some cosmetics adopt natural materials, synthetics, such as coloring matters and flavors are also used in their production. Therefore, make-up provides beauty temporarily. It also damages skin and causes wrinkles.

What should attract our attention is that some wrinkles on women's face are caused by cortex steroids ointment used in external way, such as fludrocortisone ointment, triamcinolone acetonide ointment, compound dexamethasone acetate ointment. These ointments lead to skin shrinking, thinning and wrinkles.



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## 10. Four-step wrinkle prevention

Wrinkle can be divided into kinetic energy wrinkle and static energy wrinkle. Static energy wrinkle is a kind of wrinkle that can be seen even a person has no facial motion, i.e. part under eyes, at altercates. That is brought from skin aging and from cuticle and corium becoming thin. Kinetic energy wrinkle is a kind of wrinkle that can be seen when a person's face has a motion, i.e. wrinkles on glabella, sides of eye tail and forehead. But wrinkles can be also caused if a person's bodily form is thin with less subcutaneous fat.

According to external changes in different ages, wrinkle' formation can be divided into four stages:

- a. Mild aging stage: at the age of about 28-25. Fundamentally no wrinkle can be seen;
- b. intermediate aging stage: at the age of about 35-40. Kinetic energy wrinkle arises;
- c. relative serious aging stage: at the age of about 50-60. Static energy wrinkle arises;
- d. most serious aging staging: at the age of over 60-75. Obvious wrinkles and skin prolapse can be seen.

## 11. Wrinkle arisen rate of all ages

Wrinkle arisen rate of all ages is recorded in percent form as follows:

At the age of 18-29: wrinkles arise on 44% of women' forehead

At the age of 30-39: wrinkles arise on 56% of women's glabellas

At the age of 40-49: wrinkles arise under the eyes of 72% of women and on glabellas of 75% of women

At the age of 50-59: 65% of women have goosefoot lines and 60% have nose-chin veins.

## 12. How sensitive skin comes?

Is delicate skin easy to form sensitive skin?

No exactly. Sensitive skin is divided into congenital type and postnatal type. The former one is related to inheritance. It is usually sensitive skin. The later one is related to many factors, such as: a. environment, season alternation. Lines are caused by changes of humidity, air pollution and ultraviolet radiation; b. internal disease and incretion disorder, i.e. long-term disorder of stomach and intestines' function; c. unbalanced nutrition and long-term innutrition; d. spirit, long-term instable spirit, high pressure and excessive blahs; e. medicament, i.e. skin may has dependency on medicine if keeping using punchy or steroids medicine; f. improper maintenance, i.e. skin is cleaned excessively using alkaline products, or excessively remove cutin.

## 13. How hypersusceptibility comes?



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There are four factors that tend to bring and induce hypersusceptibility:

5. Food: irritative food, such as seafood, pollen and capsicum and so on;
6. Medication: eternal medicine, such as liniment, lintment; medicine, such as aspirin, anodyne, diuretic and so on;
7. Cosmetics: alcohol, coloring matter, flavor, antiseptic and sun-screening agent, and hair dye, cold wave lotion and so on;
8. Eyewinker: such as animal hair, leather goods, K gold, oil paint and so on.

### **14. Why sensitivity and hypersusceptibility occur?**

Healthy skin has a layer of natural protective membrane-sebum membrane. In normal conditions, it contains about 5%-7% of axunge, 20%-30% of moisture, both of which are in subacidity. It can prevent not only moisture from excessive evaporation, but also ultraviolet and air pollution from hurting skin. Once sebum is damaged, moisture-keeping function will become weak, skins is getting dry, itch, even peels, and becomes weak in guarding against cold and hot and pressure. In this situation, we can see inflammation, red in some parts of skin. That is sensitivity.

Hypersusceptibility refers to that a series of reflection will arise when skin contacts anaphylactogen.

### **15. Characteristics of hypersusceptibility and sensitivity:**

Characteristics of sensitive skin are: a. hair pores are closed and fine. The surface of skin is dry, coarse. Skin is thin, and capillary vessel and asymmetric rubeosis can be seen; b. dryness and itch tend to occur to surrounding of eyes, mouth margin, arthrosis and so on. c. many cosmetics and some medication lead to hypersusceptibility, which is marked by partial rubefaction, itch and anthema if not serious, and swelling, exuviations, many irritable pimples, water seepage and even exuviations in large area and fever heat on the whole body if it is serious.

### **16. Treatment of hypersusceptibility and sensitivity:**

Words from exports:

- a. For sensitive skin, irritative food and herb cosmetic should not be eaten and used; no contact on hotness, alkali and electricity; do not rub skin excessively; avoid being irradiation by ultraviolet radiation and wash face with cold or warm water.
- b. Once hypersusceptibility occurs, we should go to find out why. We should keep away from anaphylactogen. Simultaneously, adjusting immunity and improving sensitive constitution through eliminating free radical.

If hypersusceptibility occurs during nursing:



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- a. Stop using cosmetics. Have a treatment if it is not serious and smear antianaphylaxis medication if it is serious, and stop using the medication at once when the disease straightens up. If it is very serious, go to hospital for a treatment.
- b. Nursing order in beauty parlor can be improved. The order is: cleansing cream-skin lotion-cold spraying (B6 vitamin or antianaphylaxis essence can be added)- shiatsu on facial points- antianaphylaxis collagen face mask- cold compress-basic maintaining.

### Technical Specifications:

IPL	IPL Energy	1-50J
	Pulse No.	1-6
	Wavelength	430/530/640/690nm standard (530nm, 560nm, 580nm, 750nm optional)
	Spot size	10x40mm
Basic specifications	Controller:	10.4" color touch LCD screen
	Output power	1500W
	Pulse Duration	1-10ms
	Pulse delay	1-100ms
	Pulse/Discharge interval	1-4ms
	Program languages	English
	Cooling System	semiconductor+ air + water + cooling gel
	Skin Cooling	$\leq 0-10^{\circ}\text{C}$
	Dimension of machine	50x39x30cm
	Dimension of package	64x52x55cm
	N.W.	20kg
	G.W.	35kg
Voltage	100V~240V	



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