
YAG LASER USER MANUAL



When operating this machine, please read the manual of its instrument carefully. ★

Before testing the machine to work properly, do not throw away any package: to avoid losing the accessories which is in the foam;

In the future, if you encounter a problem, please use videos and pictures to show the problem and contact the seller immediately, and do not disassemble the machine yourself;

Special Note

1-1: Check the package:

The machine cannot be inverted, and the package cannot be damaged. If there is any damage, please notify DHL and the seller and register it;

1-2: Installation of the machine:

After receiving the new machine, it is recommended to place it in a warm room for 24 hours to prevent the residual water in the water tank from freezing and damaging the machine; (In winter, due to the different temperatures in each country, the residual water in the water tank will freeze on the road if the temperature is very low);

1-3: Check the machine accessories:

When you open the package, please check all the accessories, and you can provide pictures for the seller to check;

It is recommended to start assembling the machine when you open the package. Some accessories are in the foam. When you open the box, the foam may be stuck in the box. If you throw the box away, sometimes the accessories will be lost;

1-4: Machine safety: The manual has guidance

1-4-1: Install the hanger firmly (securely install the screws);

1-4-2: Install the handle correctly. All handles must be installed before the machine can be started;


1-4-3: Add purified water or distilled water to the machine. Do not add mineral water;

1-4-4: Store the extra accessories and use it in the future;

1-4-5: When starting the machine for the first time, connect the power cord and turn the emergency stop device to the right. The red button pops up; then turn the key;

1-4-6: After using the machine, turn the key to turn off the machine;

1-4-7: When the machine is working and encounters danger, press the emergency stop device to cut off the power immediately;

1-4-8:  When the machine encounters a malfunction, please use pictures and videos to show the problem of the machine, contact the seller to solve it, and do not open the machine for inspection by yourself;

Chapter 1 Read before operating

1.1 Notes

Please read the user manual carefully before operating the machine!

- 1) Make sure the device is in normal status, avoid unnecessary harm.
- 2) Don't put the equipment into a strong electric current and magnetic field, otherwise it may cause a fault.
- 3) Check whether the power supply voltage matches the equipment. Don't use AC current more than 240V.
- 4) Don't operate the equipment in a high temperature or humidity place, avoid electric shock or fault.
- 5) Make sure that the equipment is connected to the power supply before work.
- 6) Before work, make sure that connection is good between circuit and accessories.
- 7) Don't shake or strike the equipment during the operation.
- 8) Don't use the equipment if cables or connections are damaged, fall to the ground, water, or other damage.
- 9) Don't put the cover board and electric wire to be used as a carrying handle.
- 10) Electric wire and hose should get away from the heat source.
- 11) It's better to operate the equipment in a dry place, don't use it outdoors.
- 12) Only use accessories provided by our company.
- 13) Please turn off the power supply after work/before cleaning / maintenance.
- 14) Don't clean it with detergent, solvent or chemicals.
- 15) Don't use machines with aerosol products.
- 16) Avoid water spraying on machines.
- 17) Never use the modified or remolded equipment.
- 18) Don't use the machine if your skin feels uncomfortable or hurt.
- 19) Pregnant women are forbidden to use it.
- 20) Please consult a doctor before working with it if you have any questions.
- 21) When the emergency happens, please press the emergency button (red button) to turn off the device.

Note: Only personnel trained by the dealer have the right to maintain the internal facilities of the instrument. Any unauthorized handling may cause damage to the instrument and invalidate the warranty.

1.2 Operator training

Only personnel who have undergone professional training, understand the effects of treatment and possible risks can use the equipment. The operator must read the user

manual carefully before operating the equipment. The success of treatment depends mainly on the experience of the operator and the understanding of professional knowledge.

1.3 Electrical and equipment safety

The power supply used by the equipment is 200V~240V (50/60Hz) single-phase power supply, international standards (120cV~260V, 50/60Hz); 20A (90~130V, 50/60Hz) single-phase three-wire socket.

The equipment is in contact with the ground through three wires. The ground wire must be reliably grounded. Only authorized personnel can repair the equipment, otherwise the warranty will become invalid

Note: Avoid using flammable materials such as acetone and alcohol within the operating range.

Chapter 2: Machine Configuration + Assembly

2.1 Accessories list:

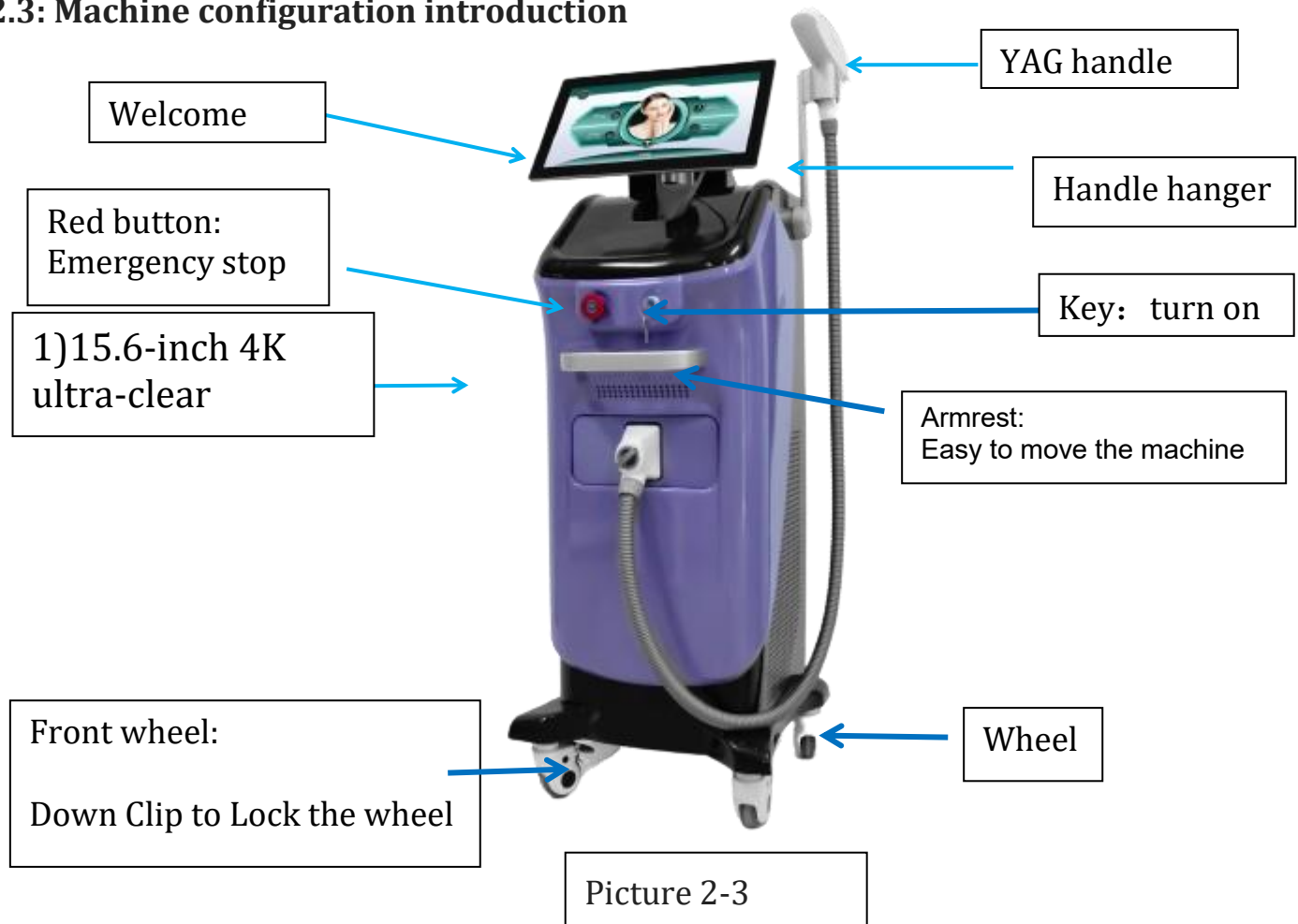
Part picture	Part name	Quantity/set or pics
	Host	1 set
	YAG handle	1 pics
	Head of YAG handle	532nm+1064nm +1320nm
	YAG Operating glasses	1 pic
	Keys and screws	some
	Eye patch (to be worn by the customer)	1 pic

	Different Handle hanger	1 set
	Water funnel, tube: insert into the water injection hole, add water	1 set
	Water pipe for water overflow /water discharge	1 set
	Power Cable	1 pic
	Foot switch	1 pic

2.2 :Specifications

Specification	Data
Machine	YAG laser machine
Screen size of the device	15.6 inch
YAG handle Configuration	Handle with red aiming: 3 heads 532nm+1064nm+1320nm
Cooling system	water cooling+wind cooling
Machine power	1000W
Diode Energy density	0-50J/cm ²
Voltage	100-240V/50-60HZ

2.3: Machine configuration introduction



2.4 Installation

2.4.1: Procedure of Installation

The device should be installed in an environment free of corrosive gas, dust, and particles. Corrosive gas will damage the electronic and optical components and connecting wires of the device. More dust and particles in the air can cause damage to filters and electrical components. The temperature and humidity range of the equipment installation environment should meet the performance parameters of the equipment.

2.4.2: Equipment installation process:

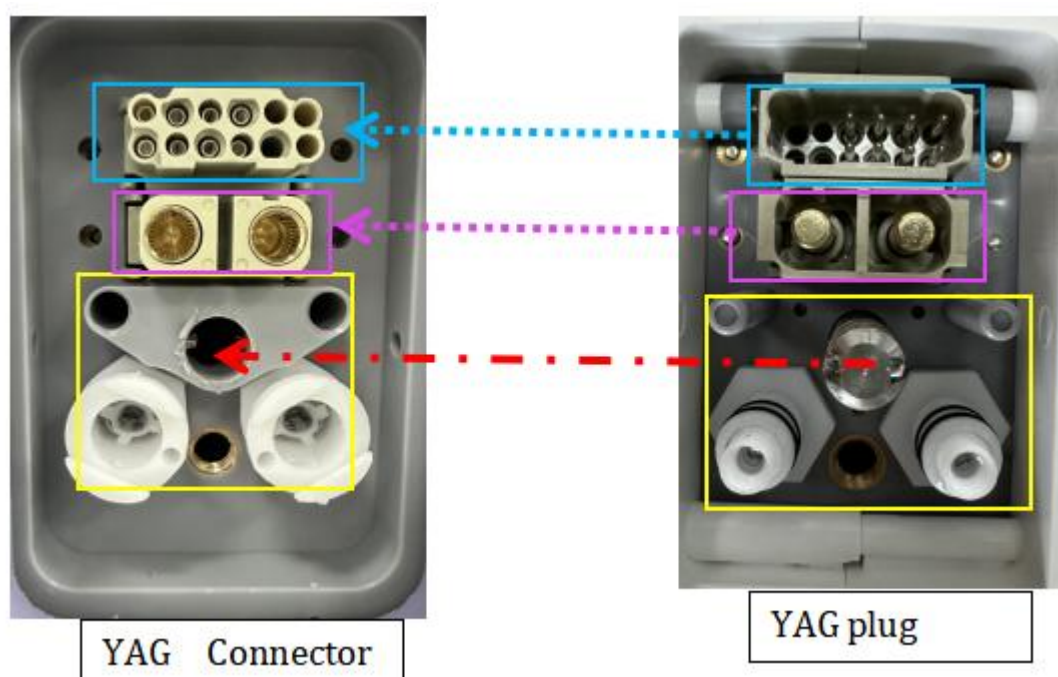
- 1) Take out the device.
- 2) Leave the machine for one day in a warm room to avoid excessive humidity or freezing caused by long-distance transportation.
- 3) Assemble the components of the device to ensure that the connections at each interface are stable (See below for guidance: 2.4.3).
- 4) Fill the water tank with distilled water (See below for guidance).

5) Connect the handle of the device to the power supply of the device.

After all components and power connections are complete, turn on the device and test its performance and system parameters while ensuring that the device is connected correctly.

2.4.3 Installation of the operating handle:

- 1) First fix the handle hanger, it must be firm to avoid breaking the handle;
- 2) The pointer must be aligned: handle plug and connector of handle, handle connector, and then rotate to avoid bending the pointer;
- 3) Water can be added only after the handle is installed;



- ① Align the pointer ;
- ② After inserting, rotate the button on the handle;
- ③ Hold the handle with your left hand and turn the button clockwise with your right hand to lock the handle; The handle will be installed well.

Turn the button on the handle by clockwise to lock the handle

4) When adding water, the handle should be placed under the host of machine (not to drop the handle) to discharge the bubbles in the handle. After adding water, start the device and let the water circulate for at least one minute before performing relevant treatment (purpose: to allow water to flow smoothly in the handle to avoid lack of water in the handle, which will burn the lamp of handle).

5) When starting the machine for the first time: remember to rotate "red button" to the right to make the "emergency stop button" pop up;

2.4.4: Water filling

1) After the new machine arrives, it must be placed in a warm room for 24 hours to melt the ice remaining in the machine (the temperature is too low in winter, and the water in the machine will freeze on the road);

2) The ambient temperature should be 5°C~40°C; the humidity should be less than 80%, and the treatment room should be clean.

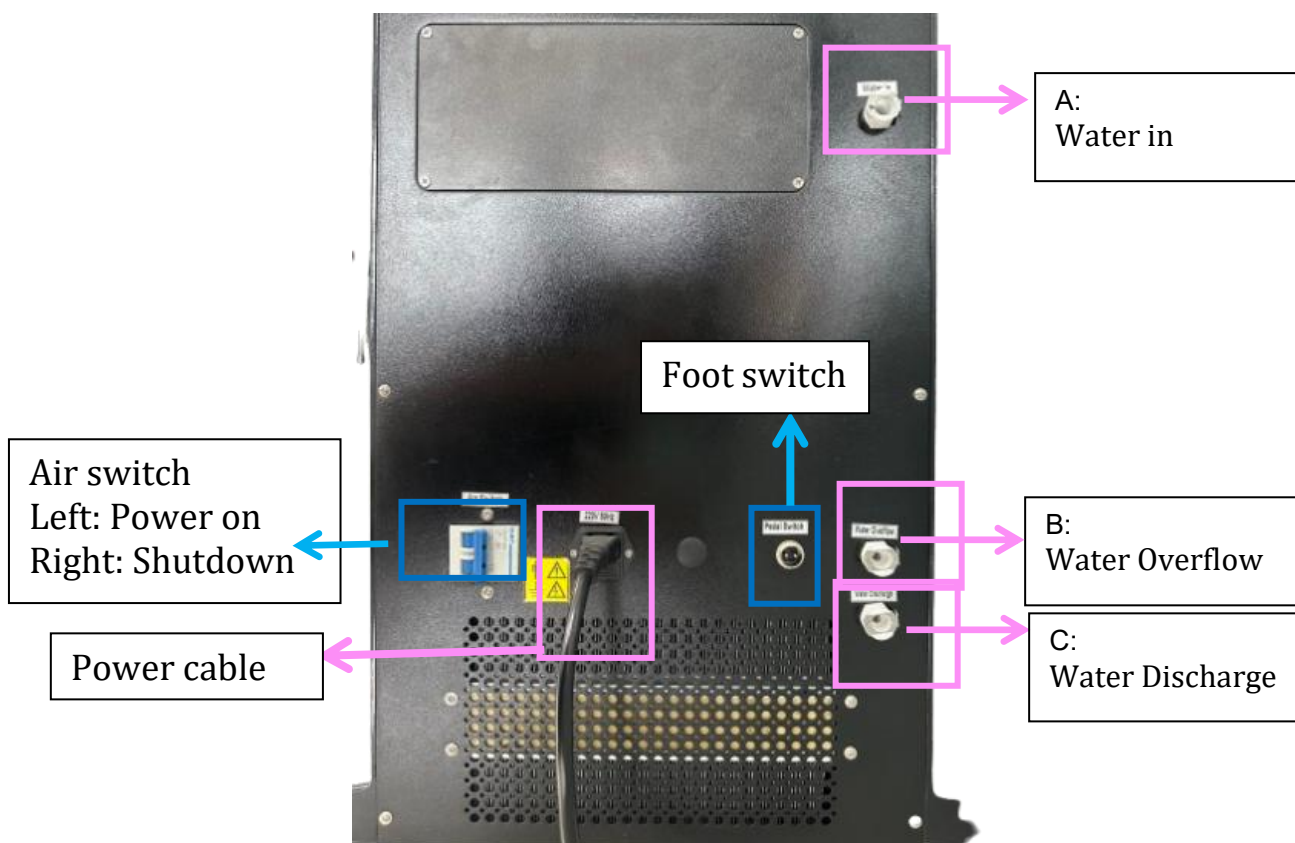
Before filling water, please make sure that the overflow hole is unobstructed and the handle is installed intact; otherwise, water cannot be filled .

2.4.5: Water filling requirements

1) The first thing to do for a new machine is to fill the equipment with water: distilled water or purified water must be added, not mineral water.

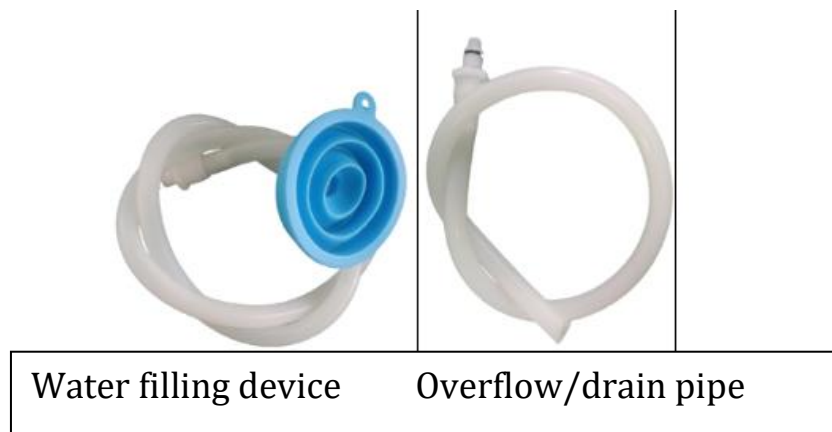
2) When the new machine is started for the first time, if an alarm sounds, please take a video (check the operation interface) and contact the salesperson immediately;

3) After a few months, if the machine keeps alarming after it is started, it should be that there is less water and it needs to be refilled. Water flows out from the overflow port and the water is full;



Water in:

- (1) Insert the white pipe connector into “water overflow” hole, place a basin underneath;
- (2) Insert the white connector port of the water injection funnel into the “water in” hole, and inject water into the device through the funnel.
- (3) when water flow from “water overflow” hole, stop add water, machine water is enough;



- (4) After the water injection is completed, use hand press the (A) iron piece of: "Water in" hole / "water overflow" hole / "water discharge" hole;
- Then insert the tube: **C** to add the water injection device from the “water in” hole.
Then remove the tube **B** to remove the water injection device from the “water in” hole.
As shown in



2.4.6 Water circulation testing

After the equipment is filled with water, connect the power cord . After the connection is completed, perform water cycle debugging on the equipment.

The steps of water cycle operation debugging are as follows:

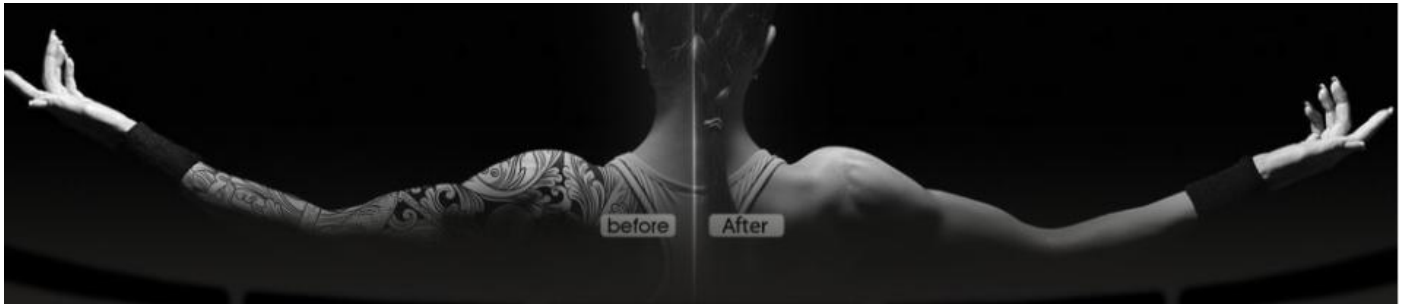
- 1) Before starting the equipment, you must ensure that the emergency stop switch is in the bouncing state. If the emergency stop switch is pressed, turn right the emergency stop button to make it pop up.

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- 2) Turn the circuit breaker switch on the back of the device to the "ON" position.
 - 3) Turn the key switch clockwise to automatically operate the water circulation cooling system inside the device.
 - 4) Observe whether the water circulation of the equipment is normal.
- If there is no water leakage, water flow alarm, etc., let the device run automatically for more than one minute before it can be used.

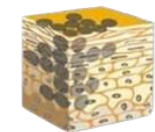
Note: Change the water every 2-3 months . Please use purified water or distilled water. Drain as much water as possible from the cooling system.

Chapter 3: YAG Basic Introduction

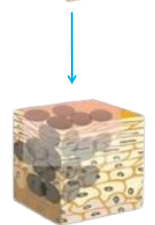
3.1 :YAG Principle for tattoo removal



YAG Laser delivers light of specific wavelength in ultra-short (nanosecond). The high peak energy pulses are absorbed by the pigments and results in an instantaneous blast, that is light blasting principle. The pigments and results are shattered into fragments, some can be bounced out of the skin and others can be split into tiny particles that can be engulfed by phagocytes and then eliminated by the lymphatic system, and the pigment gradually fades and disappears.



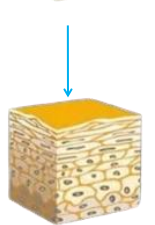
Pigment hides in the dermis of the skin.



Laser selectively acts on the pigment;



Pigment blasts while absorbing the energy;



Pigment is engulfed by macrophage and excreted;

3.2 YAG functions:

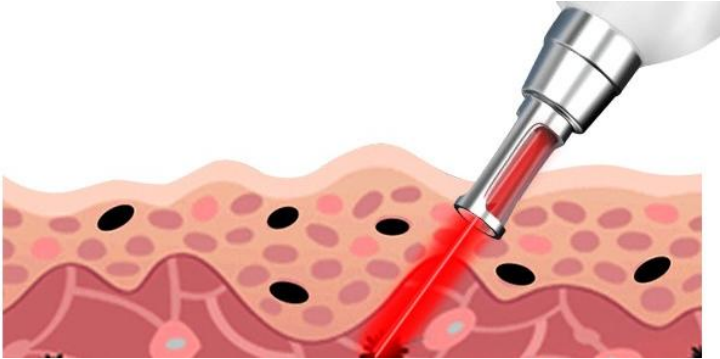
Age Spots Removal; Tattoo Removal; Carbon Peeling (removing pores, oil and dirt);
Mole

removal; Onychomycosis (removing fungi);

★ Not recommended for treatment: Chloasma Removal;

3.3 YAG handle Configuration:

3.3.1 handle with red aiming to easy aim treatment part.



3.3.2 YAG handle with 3 heads:



① Black doll (1320nm) tip: shrink pores, balance grease secretion, tighten, remove fine lines,

Treatment :acne, rough skin, light epidermis acne, acne to print.

② 1064nm tip: Removal Black, blue, green color tattoo ,eyebrows,freckle ,nevus etc pigmentation;

③ 532nm tip: Removal Red, brown color tattoo ,eyebrows,freckle ,nevus etc pigmentation.

Chapter 4: Start the machine

4.1 Before Operation

- ❖ It is necessary that users should read the manual carefully prior to the application of this machine.
- ❖ Consult patients on whether they have any of the contraindications mentioned previously (see diode laser, YAG laser contraindications).
- ❖ It is suggested that this machine is operated in a separate room.
- ❖ Make sure the handle and power cable are well connected into the machine.
- ❖ Please do a physical examination to ensure treatment effect and prevent the anaphylactic reaction.
- ❖ Disinfect the probe and other therapeutic devices.
- ❖ Shave the treated area when doing hair removal and keep it clean.

When the water level alarming icon show red color ,and “ ! ” marker is appeared ,that is mean the water is too less .

Solution: please fill water in time.

4.2 Water tank temperature alarming

Water tank temperature value is too high ,and the“ ! ”marker is appeared ,the system will switch to the standby status automatically .

Solution: Please check whether the water circulation component working normal or not, or whether there are any destroy or broken of the components. If all above problems are not seen, please contact the device producer or distributor.

4.3. Handle water temperature alarming

Handle temperature value is too high ,and the“ ! ”marker is appeared ,the system will switch to the standby status automatically .

Solution: Please stop to use the handle and wait some time, then turn on the device again. If the handle temperature alarming continues, please contact after-service engineer or your distributor.

4.4 Water flow alarming

Water flow alarming

When the water flow lower, the water drop icon is lighted, that is mean the water flow alarming, the device system will switch to the standby status automatically.

Check the water level to see whether there is enough water (add water again). Please check the handle connect well or not, whether there is water leaking. If all the above problems are not seen. Please contact the device seller.

4.5 During Operation

- ❖ Turn on the machine:
 - Lift the emergency button: If the red Emergency Switch is pressed down, the power will be shut off immediately. It should be released when you are trying to start the machine.



- Turn the start key clockwise and then the machine start to work.
- Ensure good water flow. Switch on and off the machine for 2 minutes respectively. Then repeat this cycle for 3 times to normalize the inside water circulation.

After turning on the machine, into system :YAG system , Click : YAG into system



Chapter 5: Precautions before YAG laser treatment

5.1 Is it suitable for YAG laser treatment?

Different methods should be adopted according to the cause of pigmentation. Common removal methods are divided into the following categories:

(1) Congenital pigmentation skin diseases: such as freckles, freckle-like nevus or Ota nevus, etc., can be treated with picosecond laser or Q-switched laser treatment, which can achieve good results. Café de café spots are also congenital pigmentation skin diseases and can be treated with laser;

(2) Acquired penetrating pigmentation: such as eyebrow tattoos, tattoos, etc., can be treated with YAG laser;

(3) Acquired pigmentation skin diseases: such as melasma, post-inflammatory pigmentation spots or cosmetic pigmented dermatitis, etc., should be treated with drugs. Patients should pay attention to avoid light and sun protection to avoid worsening pigmentation. They can often use sunscreen, umbrellas, and straw hats. Topical treatment can be topical tyrosinase inhibitors, such as hydroquinone cream, or topical retinoic acid cream at night. It can also be combined with oral vitamin C or a vitamin C mask.



Matters that can Influence Laser Treatment

There are many factors which can affect the results of successful treatments and complete removal is not always achievable.

Clients should be given realistic expectations of treatment results, and complete removal of pigment can never be guaranteed.

5.2 YAG laser treatment: Contraindications People

5.2.1 Commonly not suitable for people

Operator must record details of the client's medical history. All patients must complete and sign the history profile prior to treatment. The medical history is reviewed and confirmed with the patient during their consultation.

DO NOT treat anyone with the following conditions unless client obtains a signed letter from his/her doctor confirming that the medical condition(s) will not prevent client from having laser treatments;

- (1) A skin infection in the area to inflammation or be treated or a history of herpes simplex;
- (2) Skin inflammation or damage;
- (3) Keloid or very thick scarring: Some clients are prone to raised scars even if the wound is small;
- (4) Women during menstruation,
- (5) and photosensitivity disorders;;
- (6) Caution: Prohibited for heart disease, hypertensive disorders;
- (7) Those who have used other forms of tattoo removal within 6 weeks
- (8) Those who are allergic to hydroquinones or other bleaching agents;
- (9) Those with malignant tumors;
- (10) Other high-risk groups;
- (11) Pregnant or Breastfeeding;
- (12) Lupus or other autoimmune deficiency;
- (13) Bleeding abnormalities;
- (14) Treatment of Acne in the last six months;
- (15) Inflammatory Skin Conditions (e.g: Psoriasis) or Injuries;
- (16) Hypo-Pigmentation;
- (17) Rheumatoid Arthritis "Gold" Therapy;
- (18) Herpes simplex or fever blisters;
- (19) Diabetes;
- (20) Epilepsy;
- (21) Cancer;

(22) HIV/AIDS;

(23) Used St John's Wort in the past 3 months;

(24) Newly Tanned skin (includes; natural suntan, tanning bed, fake tans) in last 30 days;

(25) Waxing/Plucking/Electrolysis/Sugaring within last 6 weeks;

(26) Wearing a Pacemaker, or any Metal Pins/Plates;

Note: This list is not fully comprehensive and other factors may arise during consultation.

5.2.2 Common photosensitivity factors

Many prescription drugs and herbal remedies can cause increased Photosensitivity meaning the skin becomes more sensitive to light.

Photosensitivity reactions are generally either Photo-Toxic or Photo-Allergic.

Photo-toxic drugs are more common than photo-allergic drugs. Reactions can include:

1. Extreme sunburn

2. Swelling

3. Stinging and Burning

4. Hives

It is important that you obtain a list of common photosensitising medications for reference.

9.2.3 Skin Typing

One of the important parameters for the success of laser treatments is the correct typing of the skin.

Skin type is often categorized according to the Fitzpatrick skin type scale, which ranges from very fair (skin type I) to very dark (skin type VI). The two main factors that influence skin type and the treatment programme devised by physicians are:

① Genetic disposition

② Reaction to sun exposure and tanning habits

Skin type is determined genetically and is one of the many aspects of your overall appearance, which also includes the colour of eyes, hair, etc. The way skin reacts to sun exposure is another important factor in correctly assessing skin types. Recent tanning (sun bathing, artificial tanning or tanning creams) has a major impact on the evaluation of your skin colour. Treat as the next darker type if unsure.

5.3 Before treatment, do energy testing 2 weeks in advance;

5.3.1 Client Consent

All patients must complete and sign client consent to the treatment form prior to

treatment. The medical history is reviewed and confirmed with the patient during their consultation.

9.3.2 Patch Test

Patch tests should be applied to establish the highest level of energy that the patient's skin can tolerate without adverse reaction.

- (1) Determine the patient's skin type and select the settings for the three test spots accordingly.
- (2) Remove any make-up or lotions and cleanly shave the area to be tested. Make sure the area is completely dry.
- (3) Each test spot should be clearly delineated. Increasing energy for each successive spot left to right or bottom to top for consistency in assessment and documentation.
- (4) After 5-10 minutes, record the initial reaction on the test spot notes.
- (5) Test spots on patients with skin types V and VI should be at least 2 weeks prior to treatment in case of late emerging side effects. Other skin types may not have to wait as long.
- (6) Upon return, treat the patient at the highest energy tested that did not cause an adverse reaction (crusting, blistering or pigment change).

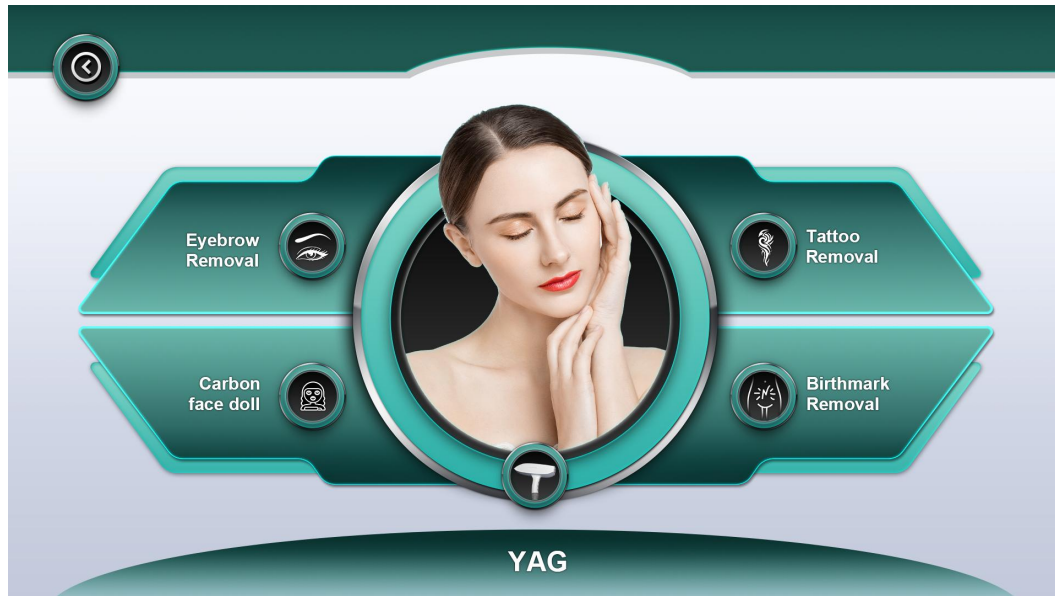
5.4 Pre-treatment advice

1. We advise you take the second treatment 4-6 weeks after the first;
2. You can shave the eyebrow before removing the eyebrow with a device in order to examine the effect;
3. Take photos before and after every treatment for reference;
4. We advise you that you should treat large tattoos and nevus little by little and time by time to avoid much discomfort to the client. You can also help build client confidence by seeing the contrast between before and after the treatments.
5. There may be the sound of the pigment breaking when you treat the deep tissue of the tattoo because of the strong absorption to laser energy with 1064nm. The tint colour of the pigment can come out the cuticle after absorbing the energy;
6. Use a lower energy over bony and thin-skinned areas;
7. The results of tattoo removal will be more noticeable in the first few treatments, due to there being more pigment;
8. The function of digesting and transportation of the macrophage can continue for a long time, and the colour can fade more during this period;

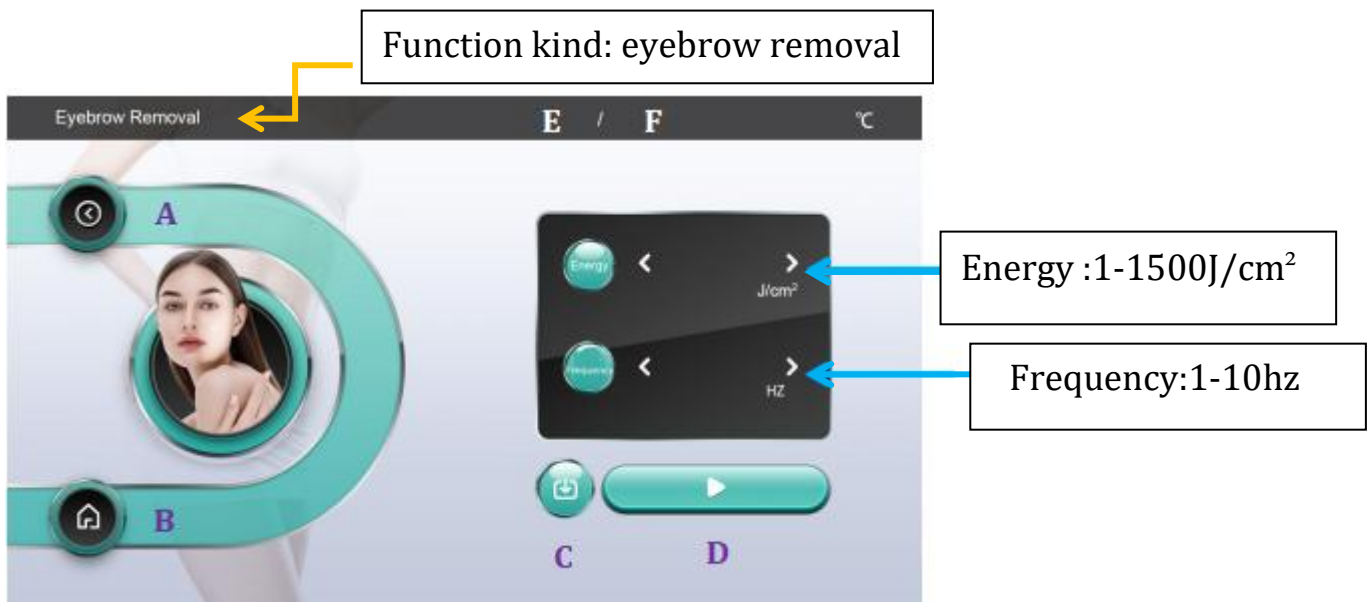
Chapter 6: YAG tattoo removal system operation

6.1 choose YAG laser system

Click “YAG” Enter the following system





6.2 Then click function: “Carbon face doll/Eyebrow removal/tattoo removal/Birthmark removal; Enter the following system:




(1) Choose function;



(2) A: Click “”, Return to the function selection interface;

(3) B: Click “” Return to the main page and select the handle "DIODE" "YAG"

(4) C: Click “” Store the set parameters for direct use next time;

(5) D: Click ready button “” to Standby “”,



its mean: The handle is in the waiting work state; The handle will emit a red light (aimed at the treatment position),

warning: For safety, the handle faces the ground or black test paper, step on the pedal, the handle is in working while emits high energy light to blast melanin;

(6) If you keep pressing the foot switch, the handle will keep shooting light;



(7) To end treatment or temporarily stop treatment, please release the foot pedal switch while the handle will stop working; then please click the standby button “

 to the ready button “” to ensure that you do not accidentally step on the foot pedal switch to cause danger;

(8) If the beauty operator who have no experience in YAG operation, please should practice with YAG handle with 1320nm head first (for the treatment of black face doll skin rejuvenation, handle can only blast carbon scream, and align it with other parts without causing harm, but customers must wear goggles to protect their eyes);

(9) E: The number of times the handle emits light after machine turn on;;

(10) F: The total number of times the handle emits light after being used;

Chapter 7: 1320nm head of YAG laser treatment

7.1 Principle and function of 1320nm:

Apply a thin layer of carbon cream on the face, wait for the carbon cream to dry, and then use the 1320nm treatment head to treat the skin, so that when YAG laser light shoot on face, the carbon cream explodes and take off the dirt and oil which in the pores, avoiding pore blockage and acne formation;

Black face doll is a very common for skin rejuvenation project, suitable for people of all ages and genders, without side effects.

Black face doll: shrink pores, balance grease secretion, tightening remove fine lines, the treatment of black head, acne, rough skin, light epidermis blain blain to print.

7.2 Taboos:

- 1) People who are allergic to carbon should not experience it
- 2) Not suitable for pregnant women
- 3) Not suitable for Light sensitive

7.3 Test:

Apply carbon cream behind the ears and wait for 15 minutes to see if there is an allergic reaction;

7.4 Precautions before treatment:

clean the face without leaving any skin care products;

7.5 Precautions after treatment:

1. Replenish water and cool down

After treatment, clean the face with warm water. There will be short-term reactions such as redness, swelling and heat on the face. It is necessary to quickly cool down and replenish water. The doctor recommends using a collagen surface patch or a moisturizing mask (put the mask in cold water or refrigerator in advance), which can absorb quickly Heat, cooling, hydrating, antibacterial, can promote epidermal growth and metabolism.

2. Pay attention to sun protection

After treatment, it is necessary to avoid direct sunlight and ultraviolet rays, and it is necessary to strengthen sun protection. It is recommended to use sunscreen above SPF30-50, and bring a parasol or hat when going out to do physical sun protection.

3. Do not use irritating skin care products

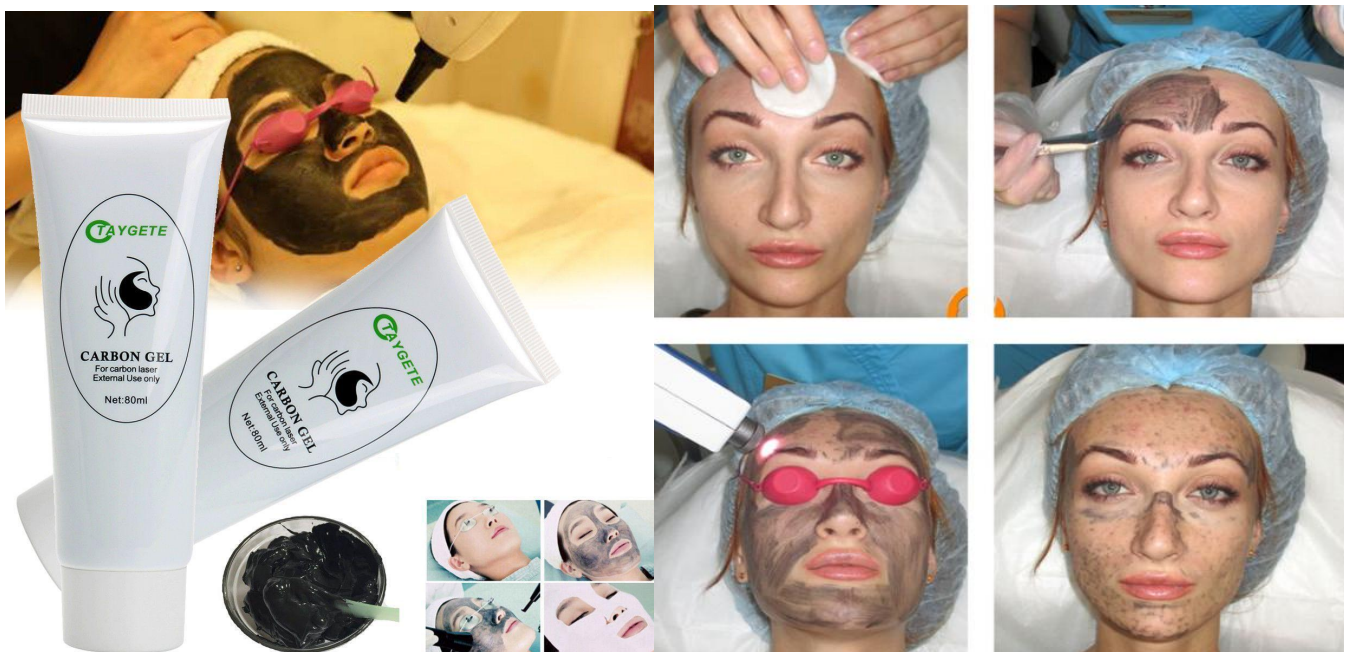
Do not use skin care products containing fruit acid, A acid, salicylic acid, exfoliating, high-concentration vitamin C, alcohol and other irritating ingredients within one week after treatment. At the same time, don't wear heavy makeup, and don't use exfoliating and scrubbing products that stimulate the skin.

7.6 Operation guidance

- (1) Install 1320 nm head to YAG handle, 1320 nm is black
- (2) Clean face (Don' t leave any skin care products on your face);
- (3) Use a makeup brush or thin wood chips to apply carbon cream on the face
(Remember to apply evenly, quickly and in a thin layer):



- (4) Wait for the carbon cream to completely dry, then adjust the parameters and prepare for treatment (such as video), **When treating, clients need to bring safety goggles;**



(5) Parameter suggestion (suitable for me, so you should adjust it according to your customers' feeling)

Red part: 650-780J/M²

Blue part: 550-750J/M²

Green part: 480-650J/M²

There are fragile parts on the face and the energy should be lowered. You have to ask the customer's feelings, but you must ensure that the facial toner is crushed, the splash is clean, the toner will take away the pore waste and oil.



(6) do as video: operation video, adjust the parameters to ensure that the carbon cream is hit clean (this can take away the blackheads and grease in the pores), Parameters need to be adjusted according to customers' feelings and effects;

(7) After treatment: face is clean

(8) After treatment, use a cotton pad or warm water to clean the face. After cleaning, it is recommended to make a moisturizing mask and use moisturizing skin care products:



If the exploded carbon powder sticks to the 1320nm lens, you can use a cotton swab dipped in alcohol to wipe it off, but don't use too much force;

Chapter 8: Operation Skill of YAG tattoo removal laser

8.1 Nd yag laser function :

The sapphire Q-switch laser tattoo & eyebrow removal equipment can effectively cure pathological changes of endogenous and exogenous pigment formed by mixed pigment--pigment deposit cause by operative errors on dark embroider eyebrow, embroider lip, soak lip, embroider eye line, lip line, tattoo (including traumatic tattoo), allergy source pigment, such as black, blue, green, purple, brown and red color in freckles, cafe-au-lait spots, age pigment, black naevus, etc.

(1)-Tattoo removal;

(2)- eyebrows removal;

(3)-Freckle removal;

(3)-1064nm: Removal Black, blue, green color tattoo ,eyebrows, freckle , nevus etc pigmentation

(4)-532nm : Removal Red, brown color tattoo ,eyebrows,freckle ,nevus etc pigmentation.



8.2 Different light rays of YAG laser destroy corresponding pigments?

(1) The penetration depth of the 1064nm wavelength YAG laser into normal pigmented skin tissue is about 4mm, remove dark-colored tattoos, black and blue pigment particles, traumatic pigment, nevus of Ota.

Indications: Black lip line, eyebrow, eyeliner tattoo removal (black, blue), Remove nevus of Ota, blue nevus, various pigmentation tattoos etc.

(2) The penetration depth of the 532 nm wavelength laser is only about 0.3mm. It can be used to wash red lips, brown eyebrow tattoos, port wine stains (purple birthmarks), brown and red moles on the cheeks, and permanently remove freckles and spider nevi.

Indications: Removal of birthmarks, café-au-lait spots (coffee color), age spots, freckles,

8.3 Preparation before YAG laser treatment by:

(1) Before each treatment, the user must check the functional performance of the device in order to avoid any risk of harm to patients or other persons. If the device is used in together with peripheral units, the User's Manuals for the peripheral units must also be read thoroughly and understood.

(2) Operators should complete a consultation and build a client file.

The patient fills out the informed consent form for the surgery to let the customer know the indications of the machine, exclude contraindications, and understand the number of treatments, post-treatment reactions and nursing requirements;

(3). Do not take photosensitive drugs, such as retinoic acid, isotretinoin, etc. before treatment;

(4). Taking photos can be used as a basis for comparing the effects before and after treatment, and is also an effective way to reduce medical disputes;

(5). Prepare surgical necessities: eye protection, tissue, headscarf, cold compress bag, erythromycin ointment, topical anesthetic, etc.

(6). Clean the treatment area and disinfect it with 75% alcohol, and put on eye protection for the patient;

Clean the treatment area, disinfect utensil, and shave the treatment area if necessary. You must pay attention that the area to be treated must be dry, as the treatment will be affected if there is water in the treatment area.

(7). Skin preparation. For first-time treatment and patients who are sensitive to pain, you can apply topical anesthetic cream (laser surgery generally does not require anesthesia). You can lightly rub the treatment area with anesthetic half an hour in advance, or use a cold compress bag to cool the treatment area for 15 to 30 minutes;

(8).Disinfect the treatment head and adjust the parameters to ensure that the wavelength and light spot on the machine and handle are consistent with those on the control panel.

8.4 Demands before operation

(1)The operator should wear white clothes and relevant wavelength glasses. Keep the operation room clean and make sure illumination is bright enough.

(2)You should keep the room temperature is between 22 and 28°C;

(3)avoid the laser irradiating non treatment area.

(4)The illumination of the operation room must strong enough in order to enlarge indoor occupants' pupil.

(5)Don't use the specular reflection articles while you use the laser machine.

(6)The operator must know about the diseases and symptoms of the sufferers and tell them the possible normal responses during and after operation.

(7)Operators who are professional must keep the laser beam away from non-treated areas.

(8)Operators must make sure the safe of the eyes of sufferer when treating the embroider eye line, because the harm to eye is irreversible.

1. No inflammation in the treatment part.

2. No treatment for pregnant woman.

3. Fomentation on the treatment part avoid skin dehydration.

4. No cosmetic left, clean the treatment part.

5. Taking photo before treatment, compare the effect after operation.

8.5 Preoperative Q&A Registration (as informed consent Q&A)

(1)Notice

first you should ask the customer if he\her is scar physique, if had changed skin, if he\her is allergic skin, if he\her is shaded eyebrow or removed eyebrow, tattoo by other ways. You should examine that if the treatment area already has scar, and you should tell the sufferer that maybe there is pigmentation sometimes later after you remove the pigment, and these pigments are caused by sunshine and he\her can get treatment one and a half months later.

(2)the operator should tell the sufferer the situation and treatment principle during the treatment using the 1064nm to treat the black and blue pigment in case the unnecessary bothers.

(3)You can shave the eyebrow before removing the eyebrow with a machine in order to examine the effect. We advise you that you should treat the big area tattoo and nevus little by little and time by time in case it is uncomfortable for the sufferer.

You can also help the sufferer to build confidence according to the contrast between before and after the operation.

(4)There may be the sound of the pigment breaking when you treat the deep tissue of the tattoo because of the strong absorption to laser energy with 1064nm. The tint color of the pigment can come out the cuticle after absorbing the energy. Some people may have some drops of blood because of a thin cuticle. In the first treatment, the color of the tissue may become thin, but later the color may recover about ten minutes later. This kind of effect is normal. The digestion and transportation of the macrophage can continue for a long time, and the color can become thin during this period. We advise you to take the second treatment one and a half months after the first time. The eye is more sensitive, so it tears to influence the effect; generally we take two times to get into the effect.

(5)The hair may be exfoliated after operating as you remove black and blue pigment with 1064nm, but the new hair can tend to normal. There may ooze blood and tint edema in the treatment area. It will be normal if there is the feeling of itch and the tissue is a little hard. All these feelings will disappear in two weeks or about a month, and the time is different according to different people.

(6)Hemoglobin of the tissue absorbs a certain wavelength of 532nm when you remove brown, red pigment with 532nm. The surface of the skin irradiated by laser may turn white, so as to make the pigment drops and pigmentation.

(7)The capillary may break and form congestion as absorbing the wavelength of 532nm, if serious, can cause scab. But it will be better in about 20-60 days according to different people.

(8)The sufferer will be forbidden from drawing an eyebrow, bathing and touching in the blood oozing area, and avoid shining in case causing pigmentation. If serious, the sufferer can take some medicine and erythromycin ointment which is used followed by a doctor.

(9)Clients also will not be allowed to take pepper food and alcohol.

8.6 Safety Attentions

1.Laser safety:

-
- (1)According to laser radicalization safety, laser eyebrow & tattoo removal equipment belong to the fourth laser product;
 - (2)Laser is invisible infrared light, wherein, the 532nm laser is a light that is green, dazzling visible light. Accordingly, any operator shall wear a pair of goggles with wavelength range 200~1080nm;
 - (3)The laser window is located at the bottom of the treatment head. Anyone must avoid radiation;
 - (4)Anyone should never look directly at the bottom of the treatment head or any reflecting laser light;
 - (5)Keep combustible and explosive stupeficient, liquid, gas (for example: ethanol aether laughing gas oxygen and so on away far from laser radiation area and defend measures should be taken;
 - (6)Don't irradiate laser to metal devices, or laser is reflected and is dangerous to anyone around;
 - (7)No reflecting things worn, such as watch, necklace, bracelet, etc;
 - (8)Must offer safety sound safeguard to sufferer's eyes, when removal eye line, the worker must keep out sufferer's eyeballs by gauze, the worker should have ophthalmic clinic experience and strict according to company training way.
 - (9)Different pigment assimilate different laser, the choice of dosage must from small to big.
 - (10)Our company advice you prepare special laser room and prepare air-condition or xerantic machine and paste treatment notice matter.
 - (11)Notice: big facula relative lesser power density, small facula relative biggish power density.
- Power density = power big or small / facula acreage

2.Eye safety:

- (1)Any operator in operation area shall wear goggles (200—1080nm) and any sufferer's eyes shall be protected strictly and effectively;
- (2)Never look directly at laser or reflected laser even wearing goggles;
- (3)Using gauze or eyelid plate to cover eyes, wearing goggles are all effective to protect sufferer's eyes. Wherein, humid gauze to cover eyes is more effective, but treatment part should be dry;
- (4)The equipment should be off power when debugging laser or clean laser lens.

3.Electric safety :

- (a)According to electric shock egis sort, the laser eyebrow and tattoo removal series belong to I - B model general equipment.
- (b)Connect measure up international monomial three line electrical outlet, the spec 10A upwards.
- (c)Steady voltage.

(d)After stop the machine, it inside still leave behind remnant voltage, so can't optionally take apart machine.

8.7 How to Change Treatment Heads of Laser

(1)The laser has two inter-changeable treatment tips, each offering different wavelengths: 1064nm & 532nm, these screw into the end of the hand piece.

(2)1064nm wavelength for black, blue, brown, and other darker colors tattoo removal, this tip is slightly shorter and has a round mirror inside.

(3)532nm wavelength for red, orange, pink, and other lighter colors tattoo removal, this tip is longer and has a square mirror.

(4)1320nm wavelength for skin rejuvenation (Before treatment, you need to clean your face, apply carbon scream with a thin layer, wait until the carbon scream is completely dry, and wear goggles then start treatment)

Directions:

Select the treatment tip according to the treatment of wavelength.

Screw treatment tip in a clockwise direction to attach to handle.

Screw treatment head counter-clockwise to remove.

NOTICE:

Please don't screw the treatment heads too tight.

Please stop the machine, or enter safe mode when you are changing the treatment heads.

【Quick Tips】

The result will be better that treating part by part when you treat large area tattoo.

Please treat with 532nm head first when you treat lighter colour like red. After 2-3 times treatment, the red colour tattoo may possibly turn black or brown. Then treat it with 1064nm head.

8.8 Start machine:

(1)To install: To connect the power supply line and food switch pedal in the condition that there is no endosmosis and external leakage.

(2)To install food switch pedal: to make sure the orifice be tightened according to the clockwise.

(3)To install the electric outlet: one side to connect the line to the tail of the machine, and the other side to connect to the three holes outlet.

(4)To electrify: You can insert the key right-lateral to the opening position, and whole of the machine electrify right away.

Examination of waterflow

At that time the whole of the machine electrified and you can hear the normal sound of the water cycle. let the machine run in 5-10 seconds;

Waterflow is very important. If waterflow is bad, the handle is easily broken.

8.9 Reference table of all kinds of treatment period of case history:

Case \ Time	Treatment times	Treatment intervals (intervals of two treatments)	Remark (requirements in treatments)
Tattoo	1~4	30~45days	Good effect if blood oozing
Embroider eyebrow	1~3	30~45 days	protect eyeball when shaving eyebrow
Embroider eyeline	1~3	45~60days	protect eyeball when shaving eyebrow
Dyelip Soaklip Embroiderlip	1~3	30~45days	choose 532nm the light head
age pigment Fleck	1~4	30~45days	Good effect if blood oozing
Naevus Birthmark	3~7	30~45days	Good effect if blood oozing
Carbon Rejuvenation	No limit	25-35 days	Must use carbon cream

8.10 Notes on light beam treatment during treatment

8.10-1 Test on a black paper (ink magazine or newspaper, not black tape):

(1)Let the laser tip vertically to the tattoo area and the laser exit on the laser tip touches the tattoo area.

(2)The laser will shoot when you press the Pedal switch. At this moment, you feel weak shots. Increase the distance between the laser exit and the tattoo slowly and you will find the energy focus when you hear “pa.pa.pa”. This distance is the strongest.

(3)When you finish a treatment, please click to have the laser Standby. Then turn off the machine by key switch. It is not good for the laser if turning off the machine directly without .

8.10-2 Attention:

-
1. When the machine is on, the laser exit on the handle never towards your eyes, or other people. The laser is harmful.
 2. The operator should wear protective glasses, and the patient should wear an eyepatch.

8.10-3 Vertical beam

- (1)The light beams should be vertical all the time. All the treatment doses are the parameters referring to the vertical laser beam. If it deviated from the vertical position, the laser flow will be reduced and the laser energy can not be completely utilised.
- (2)The light spots should fold and translate to a line when you remove eyebrow, eye line and lip line.
- (3)You should remove the spot and naevus gradually in small areas.



1. Put the head on the skin first



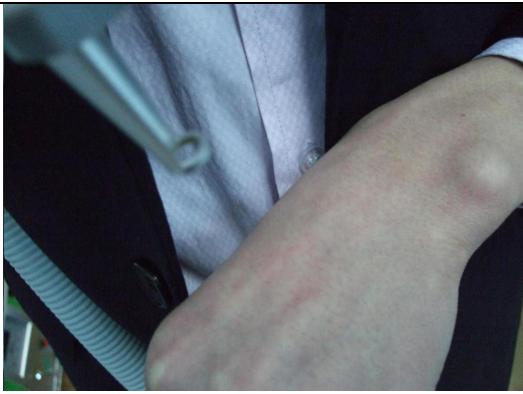
2. Then, prolong the distance between skin and head.



3. The power is most strongest when the laser beam get the focus.



4. Power will be weaker again after the distance between skin and head is longer than the focal point.



Notice:

Larger Focal Point (spot size) = Lower Power Density

Smaller Focal Point (spot size) = Higher Power Density.

5. Looking for a good distance to control the power during the treatment.

(4)The treatment area should ooze blood when you treat the area.

8.11 Suggestion parameters list

Treatment Mode	Frequency	Treatment Distance	Energy
Eyebrow removal	2--3Hz	1—2cm	300—400mj
Tattoo removal	3--4Hz	3—5cm	500—600mj
Carbon Rejuvenation	3--4Hz	3—5cm	500—600mj
Birthmark removal	3--4Hz	3—5cm	550—700mj
Eye line removal	1--2hz	1—2cm	350—450mj
Lip line removal	3--4 HZ	2--3 cm	400-500mj
Spots and naevi removal	3--4HZ	3--5cm	600-700mj

How to control the energy of laser treatment

In the early stage of the use of laser treatment, you can consider the experience of others. The parameters of the treatment of a certain disease are:

Laser energy Q, pulse frequency Y and spot size D (direct).Energy and Frequency can be adjusted directly through the machine's interface and the select button. The spot size can be achieved by adjusting the distance between treatment tip and treatment area.

Energy density =laser energy/ \dot{I} *D namely: $E=Q/0.787*D$

A: In the actual operation, the energy also needs following points to consider:

The skin colour, thickness, and rough conditions vary from person to person and due to different sites.

Therefore, the dose is different. When you operate the instrument, the dose should be gradually increased from small to large. You can find a suitable parameter at this moment. For instance, first use some spot to experiment, the spot becomes smaller gradually (that is closing to the scheduling and to lift the treatment head gradually, finally to find the focus position), at the moment energy density (flow) changes from small to large.

B: Please pay more attention to the changes of the skin colour in the normal part.

The target pigmentation always exists in corium or deeper in the skin, it should be treated by laser until blood oozes slightly. Another treatment is needed if the pigment cannot be removed thoroughly after 1 treatment.

C: Whether it is skin pigment or vascular skin diseases, we change the energy according to the colour depth. If the colour of the same lesion changes from deep to shallow gradient, the treatment should begin at the darker areas. While moving to the light-coloured, we should raise the treatment tip position. This will make the spot size get larger, and the energy get lower.

D: If the treatment area is large and location is deep, too deep and large area treatment once will lead to local edema, blisters and exudates. So a layered and slicing treatment is suggested.

Treatment recommendations: Each function

- ① 1064nm gets rid of blue, black and cyanine pigment.
- ② 532nm gets rid of red, coffee and brown pigment.
- ③ The light head should form a right angle with the treatment area in order to reduce the energy loss. The light spots should fold and translate to a line when you remove eyebrow, eye line and lip line. You should remove the spot and nevus time by time in the little area. The treatment area should ooze blood when you treat the little area.

Operating technique introduction for different disease

Tattoo removal

Tattoo removal is the major function. It has two wavelength treatment heads.

1064nm wavelength for black, blue, brown, and other darker colors tattoo removal;
532nm wavelength for red, orange, pink, and other lighter colors tattoo removal.



(1) removing single blue and black eyebrow:

The operator chooses the needed energy according to the depth of the pigment and moves slowly to the skin with a light head so as to make the sufferer have a mentality reception process, at the same time the sufferer should close eyes when accepting the treatment. You should set the light speed to 5Hz; the distance from light head to skin is one or two digit space distance. You may treat from the head or may from the tail of the eyebrow. You can take the second treatment if there is color restoration. The energy can add 20-40 and the light head can drive up 2-3 digit space distance in order to make the effect become well.

(2) shaded eyebrow removal (the shaded eyebrow can be removed clearly 2 or 3 times)

You can settle the light speed is 3Hz and the energy can be settled according to the above form. First you can treat with 1064nm in 2-3 digit space distances, and then you can treat with 532nm in the second time. The brown pigment belongs to mixed pigment, so you should take more than two times, the period is from 45 to 90 days. You can choose different light heads according to the left color.

The light speed can be settled to 3Hz/5Hz, and you can settle the energy according to the reference form above. The distance between the light head to treatment area is 3 or 4 digit space. The effect will be best if there is blood oozing point. The light head of 1064nm gets rid of blue and black pigment while 532nm gets rid of red and coffee pigment.

The course of treatment is from 45 to 90 days until it is clear.

[Eye line removal](#)

Many women love to embroider their eyebrow with different colour ink. It is very popular in China. The embroider eyebrow can be removed easily after women do not require it any more.



The light speed can be settled to 5Hz, and the energy is settled to the lowest point. It is about 2-3 digit space distance from light head to the treatment area, and the light will be seen as reference. The sufferer's eyes should be protected with thick medical cloth. First you remove the sufferer's lower eye line, and the sufferer should close his/her eyes, at the same time the eyeball looks up. The operator presses the cloth with index finger, and peels away the lower eyelid with middle finger. The light speed can be settled to 5Hz. When you remove the upper eye line the sufferer should close his/her eyes with an eyeball down gaze. The operator presses the cloth with middle finger and pulls the eyelid with index finger. The light speed can be settled to 5Hz.

Lip line removal

The light speed can be settled to 5Hz, and the energy can be settled according to the reference form above. The distance from the light head to the treatment area is 3-4 digit space. You can remove the black, coffee and deep red with 1064nm for the first time and then use 532nm for the second time. You can use 532nm to remove thin red, red, thin coffee and thin brown. You must pay attention that you accept the second treatment of removing the lip line, soak the lip and the lip's tattoo for only half one year.

The course of treatment is from 45 to 60 days until it is clear.

Speckle and naevi removal

The light speed can be settled to 3Hz/5Hz, and you can settle the energy according to the reference form above. The distance between the light head to treatment area is 3 or 4 digit space. The effect will be best if there is blood oozing point. The light head of 532nm gets rid of red pigmentation while 1064nm gets rid of speckles and naevi. The course of treatment is from 15 to 30 days until it is clear.

Birthmark and nevus of Ota removal

Just like Nevus of Ota, birthmark is also very difficult to remove. Because they are endogenous pigment. The laser can remove it after 3 to 7 times treatment.

But it **CAN NOT** be treated by laser if the birthmark protrudes the surface of the skin or has hair.



The light speed can be settled to 3Hz/5Hz, and you can settle the energy according to the reference form above. The distance between the light head to treatment area is 3 or 4 digit space. The effect will be best if there is blood oozing point. The light head of 532nm gets rid of red pigmentation while 1064nm gets rid of the birthmark. The course of treatment is from 45 to 90 days until it is clear.

Carbon Rejuvenation:

The speed of light can be set to 3Hz/5Hz, and the energy can be selected according to the reference table above. The distance between the treatment tip and the treatment area is 3 or 4 cm. Until face has no residual carbon cream, clean the face after treatment and pay attention to hydrating (use a hydrating mask, the effect is best)
The course of treatment is 15 to 30 days.

Summary: YAG laser surgical treatment recommended parameters and treatment process

1. Treatment of nevus of Ota

- ① It is appropriate to select 1064nm wavelength, set the frequency to 5 Hz, and set the energy to 300-450mj;
- ② For treatment, the laser blasting point is preferably 1 to 2 mm under the skin, and the laser is scanned line by line until the light spot covers all the diseased parts;
- ③ The energy setting is appropriate so that after the light spot is scanned, the melanin is instantly diffused and reduced, and the pigmented area bleeds slightly;
- ④ The appropriate treatment interval is 3 to 6 months. Generally, 3 to 10 treatments can achieve satisfactory results.

2. Treatment of black and blue tattoos and eyebrow tattoos

- ① Select 1064 nm wavelength, set the frequency to 3 to 5 Hz, and set the energy to 250-400mi;
- ② For treatment, the laser blasting point is preferably 1 to 2 mm below the skin, and the laser is scanned line by line until the light spot covers all the diseased parts;
- ③ The appropriate energy setting is such that after the light spot is scanned, the melanin instantly diffuses and becomes lighter without bleeding;
- ④ The appropriate treatment interval is 1 to 3 months each time. Generally, 1-3 treatments can achieve satisfactory results.

3. Treatment of coffee spots

- Generally, 3-5 treatments are required, and there is a possibility of recurrence. There may be temporary mild pigmentation after treatment. Post-operative care should be

taken seriously. Use 532 nm wavelength, energy: 80-150mJ/CM², frequency: 2-4HZ, spot: 3-4mm, interval of 3 months, 50%- 60% effective.

4. Treatment of freckles

- ① The first choice is 532nm wavelength, followed by 1064nm wavelength, the frequency is set to 3 Hz, and the 532nm wavelength energy is 80-100mi.
- ② For treatment, the laser blasting point is preferably 1 to 2 mm under the skin, and the freckles are shot one by one. After being hit, the freckles will instantly form white scabs;
- ③ The energy setting should be such that the patient has no significant pain after the light spot is scanned;
- ④ The treatment interval is 1-2 months each time, and generally 1 to 2 treatments can achieve satisfactory results.

5. Laser treatment of age spots, rosacea, and superficial capillaries:

- ① The first choice is 532nm wavelength, energy: 80-200mJ/CM², frequency: 2-4HZ, light spot: 3-4mm,
- ② For treatment, the laser blasting point is preferably 1 to 2 mm under the skin, and the blast is performed one by one. Age spots and freckles will instantly form white scabs after being hit;
- ③ The energy setting should be such that the patient has no significant pain after the light spot is scanned;
- ④ The treatment interval is 1-2 months each time. Generally, 2 to 4 treatments can achieve satisfactory results.

6. Wing laser whitening and rejuvenation treatment:

- ① Use a 1064nm wavelength laser whitening and skin rejuvenation treatment handpiece, with a frequency of 5 Hz and an energy of 250-450mJ.
- ② The treatment uses laser scanning line by line until the light spot covers the entire face or all diseased parts;
- ③ It is easier to repeat 2-3 times of scanning in areas with a lot of melanin or severe photoaging;
- ④ Each treatment of the whole face requires 2500-3500 pulses. A course of treatment requires 10-12 times, once a week. Generally, 3-5 treatments will have obvious effects. After the eighth treatment, it is changed to once every half month. After eleven sessions, it was changed to once a month, and one course of treatment produced satisfactory results.
- ⑤ Consolidation treatment: In the future, Maintenance treatment will be performed every one to three months.

Chapter 8 tattoo removal postoperative precautions

8.1 Skin appearance after treatment:

(1) Reddish swelling on treatment part on the moment, it will disappear shortly.

(2) To some special customers need energy to be higher, when you make the energy too high, there comes the scab, but it will drop off naturally after 7 days, not to scratch it, skin becomes normally about 2 days. Taking some vitamins can lighten the pigment circumference. Usually there is a feeling of scorching or slightly bleeding; it is normal and no scar.

(3) When the scabs fade away, the treatment part shows pink, 2-3 weeks later it appears coffee color, and 1-2 months later recover.

(4) In addition, if you use a YAG handle (532nm head+1064nm head), It will cause bleeding on the skin. Do not touch water, sweat, or stay in a hot or humid environment within 7 days, as this may cause infection at the treated area.

(5) After the operation, it is forbidden to paint, wash and exposure eyebrow on the bleeding. Please obey doctors' advice and combine with diet conditioning. You can't drink in three to seven days. If there is the case of more bleeding, serious swelling to the sensitive customer, we advice you take antibiotics drugs (Acetylspiramycin). In recovery period (after 72 hours), we use erythromycin ointment to heal the affected area, we can also wipe restoration liquid to repair.

8.2 Care after treatment:precautions

(1) You may clean the skin with non-stimulator water after treatment.

(2) If there is slight bleeding when the energy is higher, please wipe off and smear the antiphlogistine (such as Illotycin) until the scar drops off. Not cosmetic or other medicines.

(3) If the treatment part is flush and you feel it is not comfortable, you can do ice compress.

(4) Before the scab drops off, the treatment part must be careful not to touch water, not be scratching, avoid certain foods of hot, dark color of coffee, Coca Cola etc.

Prohibit smoking and drinking .Let the scabs desquamate naturally not scale off in a force.

(5) Not taking plenty of sports to avoid a sweat infection.

(6) After the scab desquamating, No need to coat the Ilotycin (Erythromycin) again, just smear the suntan lotion (SPF15 upwards) even in the room preventing UVA/UVB and keep along 3 to 6 months because of the treatment skin sensitivity to the sunlight. Using suntan lotion or umbrella prevention can improve the effect early.

(7) Period for laser treatment: Depending on the different treatment parts and whether the pigment is dark or not, the treatment may be several times. Normally one period of treatment is 1-2 times, every time at a 20-30 days interval. If there is nothing special, every 2-4 weeks go to the clinic to check again, if there is anything abnormal, please cure it early.

(8) Pigment fadeaway is a slow process, for the pigmentation skin, normally it is 1-3 months.

In order to get a more favorable effect, repeated treatment should be 1-3 months apart.

(9) After 532nm treatment, the treated area will turn black and become scabbed. The patient should be instructed to protect the scab, do not tear it, and avoid water.

(10)

(11) There may be a few bleeding spots after 1064nm treatment, but the reaction is normal.

(12) After treatment, apply local cold compress for 20-30 minutes. Wing laser whitening and rejuvenation does not require cold compress.

(13) If the wound is serious (with bleeding spots or broken skin), apply mupirocin ointment (Bundo. Bang) or chlortetracycline eye ointment to the wound. Severe patients can take oral antibiotics or intravenous antibiotics.

(14) The patient is required to keep the wound surface dry. After treatment, apply epidermal growth factor (recombinant bovine basic fibroblast growth factor topical solution (Beifou agent)) evenly on the polished wound surface, and gently massage it with a cotton swab for 1 minute. To ensure even distribution, apply 3-5 times a day and preferably use it for 3-7 days.

(15) Facial cleansers and functional cosmetics should be prohibited during treatment. Scratching of the treated area and peeling of scabs with hands is not allowed. Wait for the scabs to fall off naturally;

(16) Strict sun protection measures should be taken at the treatment area to prevent local skin pigmentation.

(17) No smoking, alcohol, or photosensitive foods, such as celery, coriander, spinach, carrots, etc. If discoloration remains after treatment, ultrasound can be used to introduce L-vitamin C essence or L-vitamin C.

(18) 1 vitamin C injection; 3-5 capsules of vitamin C and vitamin E for 2-4 times of repair; for severe pigmentation, 3% Hydroquinone can be used treat.

(19) Explain the time of the next treatment. Generally, the treatment interval is 1-3 months.

8.3 The reaction during the operation and recovery after the operation

The pigment of the lesion tissue is broken into gains small enough to be absorbed and digested by macrophage. Part of the particles which in the superficial is discharged from the body and the other part which in deep tissue is regularly permuted in superficial, so the tattoo can return in a short time. It will be normal if part of the skin becomes red, swelling, blisters and even blood oozing because the black pigment absorbs the energy strongly when you treat the deep tattoo. The degree is different according to different people, and you can feel a little itch and hard tissue. Generally speaking, the discomfort will disappear in 3-7days, but it may take 1-3 months for some special constitution.

You will not be allowed to draw an eyebrow, take a shower and get sunshine after getting treatment. You also should change the bad dietary habit followed by the doctor.

You can't take alcohol in 3-7days. We suggest that you should take antibiotics if blood is too much and serious swelling after treatment.

You can daub erythromycin ointment to help to heal in the recovery period.

8.4 the determinants for which pigment is different to dispel

①The quality of the texture of the pigment, the pigment divided into plants pigment, mixture pigment, and chemical pigment. The plant's pigment is dispelled easiest while the chemical pigment is most difficult to dispel. Generally, there is iron and lead in the mixture and chemical pigment, so it is different to remove.

② The depth of the pigment. Generally speaking, the deeper the pigment, the more difficult it is to remove. And it also takes many times to dispel. It will be easy to dispel if the depth of the pigment is thin. The effects will not be good if the pigment is chemical even if the depth of the pigment is thin.

③ The different physique of people. The factors include age, skin, body immunity and so on.

8.5 The knowledge collection of tattoo removal

(1) The differences between the first and the second eyebrow removal:

You should use the energy which near the focus energy. It is farther than the first time and the energy is bigger than the first time.

(2) The reason that the coffee turns to blue and black:

It is normal reaction if the coffee turns to blue and black because the coffee is a mixture pigment which includes iron, lead ion, iron ion. And all these ions can produce pigmentation, so we advise you remove the pigment with 1064nm for the first time and then use 532nm. You can examine the effect half one month later. You can use 1064nm to remove if the color turns to blue, and use 532nm if it turns to red.

(3) Why does some red eyebrow have no reaction after removing?

The pigment does not belong to plant pigment but the chemical pigment, and the iron ion has reached into derma, so it is difficult to remove. You should use the focus energy of 1064nm to break up the pigment until the oozing blood, and then you remove it with 532nm.

(4) How to remove the speckle of the face?

There are good effects on removing drought spots and butterfly speckles which are caused by climate. The deep and hereditary speckles are difficult to remove while shallow and formed by acquired factors. You can use the focus energy to remove the senile plaque until it appears oozing blood. There are three treatment courses with 45 days as an interval period.

(5) The treatment ways to remove naevi.

Using the focus energy to remove the naevi until it appears oozing blood.

(6) Can the scar constitution be removed?

A few people can be removed but the effect is not good. You should not use the focus energy, but to use the big facula and little energy.

(7) Can the pregnant woman be removed the eyebrow?

It is not allowed to accept eyebrow removal.

(8) how to remove the red blood streak and what degree will be ok?

We don't suggest that you remove the red blood streak, because the 532nm can absorb the hemoglobin in the blood. It can form the purpura to cause the operation to fail.

(9) What is the reason for bleeding after eyebrow washing?

The 1064nm light of the YAG laser does not damage the epidermis, but because some people puncture the skin too deeply, melanin is deposited below the capillaries. During the explosion, the capillaries are scratched and cause bleeding.

How to prevent scarring after YAG laser treatment and excessive bleeding during eyebrow washing?

It is necessary to reduce the energy of the laser output, use a large spot and low density, and adopt the method of multiple removals. The time interval between each eyebrow washing should be controlled to more than 1-2 months to reduce the damage to the basal cells, so that the basal cells can be washed during washing. The eyebrows can be repaired and the chance of scar formation can be reduced.

(10) Why does the 532nm laser aggravate the brown color after removing it?

The function of the 532 nm wavelength laser (green light) is to destroy brown and red pigments, but the effect of the 532 nm wavelength laser is not as obvious as the 1064nm wavelength laser in removing black pigments. At the same time, the water and red blood cells in the skin will also be destroyed due to the absorption of this light, thus causing certain damage to the epidermis. When the light destroys the brown pigment, the epidermis will also be slightly damaged, such as exudation of fluid, The brown color becomes darker after scab formation. The deepening of the brown color after scab removal is not caused by the brown color not being removed, but by traumatic pigmentation caused by damage to the epidermis. This kind of pigmentation will disappear on its own in about 1-2 months, or even longer, without treatment. Note: 532nm laser has no effect on pigmentation, so after pigmentation occurs, it is strictly prohibited to use it during the skin recovery cycle (1- Within 2 months), use 532nm laser treatment repeatedly.

How to reduce the pigmentation formed after using a 532nm laser. Will a 532nm laser cause traumatic pigmentation on the epidermis?

Therefore, you should pay attention to the following points during use:

1. Use large light spots and low energy: try not to use small light spots and high energy;

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2. The density of light spots should be relatively sparse, and try not to treat the same area repeatedly;
 3. Because the effect of removing brown pigment is not good. It is very obvious, so you should not rush for success, but adopt a phased approach (with an interval of more than three months) to eliminate it;

(11) What is the solution to the presence of multiple pigments in the same skin area?

In addition to black and blue, eyebrow pigments also contain red and brown pigments. The 1064nm wavelength laser can only remove black and blue. If there are remaining red and brown pigments, they can be removed with the 532 nm wavelength laser after three months. .

(12) How does a YAG laser remove the nevus of Ota?

Nevus of Ota is a pigmented nevus formed by melanin. Its pigment is deeply embedded in all levels of the epidermis, reaching the superficial level of the dermis, and its density is high. When using 1064nm wavelength laser to remove nevus of Ota, one treatment will not produce obvious effects due to the limited ability of the laser to target melanin. Therefore, it needs to be removed multiple times in stages. Generally speaking, it takes more than five times to see significant results, and each time needs to be separated by 1-2 months. (Each treatment requires multiple shots at the same site. Pay attention to clients with scarring constitution and try not to bleed);

Chapter 9 The Reference of Laser (Eyebrow) Beauty

9.1 Advantage

Laser treatment has many advantages as below for eyebrow and eye line removal, compared to the traditional surgery such as dispelling, frozen, electrocautery, chemical (medicine) +dispelling.

1. Less bleeding. the laser beam is very narrow and easy to target only exposure lesions. It doesn't hurt or injure the surrounding systems: at the same time the laser has the effect of "hot welding" to the vessel. It can close the vessel. Therefore it will be less likely to bleed.

2. It has less pain. On the one hand because of the thermal coagulation, the nerve ending is damaged and reduces the feeling of pain. On the other hand the treatment area is small and the treatment time is short. Therefore, patients feel less pain. This treatment doesn't need anesthesia, although some patients may prefer to apply a topical anaesthetic or numbing cream to the skin surface before any treatment.

3. The quality of surgery is high. Because there is minimal bleeding during treatment, it leaves a clear view to remove the target. Of course it also needs the quality assurance and responsibility of the operator.

4. The time of surgery is short. The energy of a laser is large and centralized. Completing the point of the treatment only needs a few nanoseconds and a few milliseconds.

5. less scar: As following the advanced "the principle of selective absorption" to finish laser beauty, it won't cause normal tissue irreversible damage, so there is no scar.

6. Fewer recruitment: as the laser treatment to the lesions is complete, the injury to the surrounding normal tissue is minimal. Therefore, the rate of the recruitment is much smaller than traditional therapy.

9.2 The knowledge of laser beauty

(1) What is laser eyebrow?

Lasers can produce high-energy and gather accurate single color light. It has a (strong) penetration and target. It will produce high-calorie at the local area while working on human disease tissue but it doesn't damage the surrounding normal tissue. Laser

eyebrow uses the laser light “selective absorption of light” principle. That is to say, the laser fires the high-energy instantly and penetrates the dermis layer of skin pigment effectively and finally reaches the mission. It is absorbed by the corresponding pigment mission. After heating the pigment mission expands immediately, Then chips into the small particles which can be swallowed up by the macrophages. After being digested by macrophages, it will be released. The pigment will get light and finally disappear. The transmitted disease of the pigment in the face will be completely dispelled. The laser beauty is safe and reliable, it doesn't have pain, and it is welcomed by all the people.

(2)What is the advantages of laser eyebrow?

Apart from the mistaken eyebrow and eye line, Compared to the tradition surgery such as dispelling、frozen、electrocute、chemical(medicine)+dispelling , laser eyebrow has following advantages:

A: Less bleeding, the laser beam is very thin and easy to do only exposure lesions. It doesn't hurt or injure the surrounding systems: at the same time the laser has the effect of “hot welding” to the vessel. It can close the vessel. Therefore it will bleed less or even not bleed.

B: It has less pain. On the one hand because of thermal coagulation, the nerve endings are damaged and lose the feeling of pain. On the other hand the operation of the surrounding normal tissue is less or even lacking, at the same time it adopts a sub-sub-point rapid treatment. Therefore, patients feel less pain. This treatment doesn't need anaesthesia. Some of them even only need the application to the skin surface.

C: The quality of surgery is high. Because the surgery doesn't need blood, the vision is clear, it is easy to decide to stay or not. Of course it also needs the quality assurance and responsibility of the operator.

D: The time of surgery is short. The energy of a laser is big and centralized. Completing the point of the treatment only needs a few nanoseconds and a few milliseconds.

E: less scar: As following the advanced “the principle of selective absorption” to finish laser beauty, it won't cause normal tissue irreversible damage, so there is no scar.

F: Fewer recrudescence: as the laser treatment to the lesions is complete, the injury to the surrounding normal tissue is minor. Therefore, the rate of the recruitment is much smaller than traditional therapy.

(3) How to master the dose of laser treatment?

In the early stage of the use of laser treatment, you can consider the experience of others. The parameters of the treatment of a certain disease are: laser energy Q, pulse frequency Y and spot size D(direct) . The first two can be gained directly through the machines and the select button. The spot size can be achieved by adjusting skinheads and the treatment of parts of the pitch.

Energy density =laser energy/ π *D namely: $E=Q/0.787*D$

A: In the actual operation, the dose also needs following points to notice:

The skin color, thickness, and rough conditions vary from person to person and due to different sites. Therefore, the dose is different. When you operate the instrument, the dose should be gradually debugging from small to large. You can find a suitable parameter at this moment. For instance, first use some spot to experiment, the spot becomes smaller gradually (that is closing to the scheduling and to lift the treatment head gradually, finally to find the focus position), at the moment energy density (flow) changes from small to large.

B: Please pay more attention to the changes of the skin color in the normal part. While treating the vascular disease, the epidermis is normal. Pathologic lesions exist in leather or deeper, at the moment laser radiate to the affected area until the appearance of bleeding. If it doesn't dispel completely, Please get further consultation with a doctor. If we continue to irradiate, the color of the face will get dark because of the heavy dose and it will appear blister and scab. This will cause light and heat damage, we should avoid it.

C: Whether it is skin pigment or vascular skin diseases, we change the dose according to the color depth. If the color of the same lesion changes from deep to shallow gradient, the damage should begin at the dark in light spot. While moving to the light-colored, we should raise the skinhead position. It will make the spot get larger, the flow get smaller.

(Notice: because of the increase of focus the color will get light, it is an additional matter.)

D: If lesions are larger and location is deep, at the same time the treatment is too deep and wide, it will lead to local edema, blisters, and exudates. The Sufferer will feel aching and get a fever. Therefore, we should spend more time on treatment. The treatment should be layered, slicing.

E: Notice this point in all the laser treatment: the light beams should be vertical all the time. All the treatment doses are the parameters referring to the vertical laser beam. If it deviates from the vertical position, the laser flow will be reduced and the laser energy can not be completely utilized.

9.3 Attention of application of 1064 nm and 532 nm Q-switched laser to get rid of pigment

(1)According to the principle of laser selective absorption, 1064nm wavelength is used for getting rid of blue, black, cyan pigmentation, 532nm wavelength is fixed for removing red, coffee, brown treatment. Therefore, while dispelling the pigmentation in the surgery, we select the skinhead in the treatment of wavelength based on the examples.

(2)1064nm skinhead is usually used for debugging apparatus coincided with the energy. The dazzling green light given off by 532nm can absorb the human's hemoglobin, which will cause the "purpura" phenomenon in the subcutaneous tissue. Therefore, it is only used for treatment of the fixed-base (such as red).

(3)No matter what conditions it is, please keep the use of laser is safe. Make sure that laser wavelengths of 1064nm and 532nm don't directly rip into eyes, or it will bring about irreparable damage.

(4) _In order to avoid the remain of the pigment in laser treatment, when we treat the mixed and fixed pigment (such as coffee, brown), we should choose 1064nm wavelength first. Meanwhile, based on the case we choose 532nm to treat, such as we use 532nm to get rid of red pigment directly.

(5) We use 532nm wavelength to get rid of eye line. The operator is supposed to operate according to the training in the company. The operator should protect the patient's eyeball strictly and effectively, otherwise, the treatment is forbidden (the injury to the eyeball is not reversible).

(6) The side-effects that comes from using 532nm wavelength to dispel brown-red are: skin surface getting white after vaporization, epidermal necrosis, a certain loss of pigment or pigmentation. Compared to the 1064nm wavelength, the red swelling phenomenon is serious. There is purpura in the subcutaneous. After the operation we can take antibiotics drugs to alleviate discomfort, after 72 hours of care we can use the repair liquid for nursing. Due to personal system differences the restoration period is about more than 60 days or six months.

(7) For several times of eyebrow the dispelling interval is no less than 60 days. The best time for the next treatment is 100 days after the last treatment. It is forbidden to treat again within 20 days after the last treatment. If there is a violation operation, it will bring about the malignant consequence of tissue hyperplasia.

(8) If the operation needs oozing of blood in the treated areas, we should pay attention to avoid to touch the affected area, collision of water, solar sunscreen apart from the infection. Please notice self-conditioning and eating habits. Avoid having spicy foods. Don't drink if the color is deep.

9.4 Eyebrow notes (sample)

(1)Our hospital use multi-function laser of Radium beauty instrument for the treatment of eyebrow, eye line, tattoo. It is a high-tech and intelligent precision instrument that doesn't injure the skin, hair follicle and completely eliminates the pigment. It eliminates all the methods of washing eyebrows, such as using drugs, biological methods, magnetization methods, and freezing process (all of these methods have some injury to the skin and hair follicle and they can't completely clear the pigment). The use of eyebrow-washing is one of the biggest dedications to beauty and the fruits of the latest technology. At the same time it is the gospel of the lady.

(2) Many similar treatment instruments take three to four times. The introduction of the instrument in our hospital uses an import core. After continuous efforts and study, we can make sure that the cure rate of washing eyebrows reaches about 85 percent. Some people even feel better. As the precision instrument is more expensive, in order to make it convenient for all the customers, in the apparatus of the warranty period, we use the outstanding price at present. If you use this instrument to wash your eyebrows, you should pay. The second charge for the second according to the effect of the last treatment.

(2) After the treatment of laser beauty instrument for washing eyebrow, eye line, tattoo, most of the people will have localized edema on the site of the radiation energy. Some people will have the phenomenon of blister redness. All of these belong to the scope of normal reaction. The general time for local edema is three days. If it is serious, it will disappear in seven to ten days. According to the situation, customers can use topical antiphlogistic ointment or restoration liquid after forty eight hours of operation to make the epidermal tissue healing. Blisters or redness usually last one to two months (some people need three to four months), then it can recover completely. After washing the eyebrows, most of the eyebrows will be swapped one time, it will grow in one to two months. Some older people (30 years and above) need about three months to recover. Some individuals need a longer period of treatment. The operation should accord with our advice. In the treatment, if you disobey the doctor's order, you take full responsibility. All the people who accept the apparatus of treatment should comply with the above provisions and sign on eyebrow notes.

Chapter 10 The Maintenance of Laser Instrument

This section describes daily maintenance of the Laser treatment system that can be carried out by the customer. Only personnel trained and/or approved by the manufacturer are authorised to maintain the inner workings of this device. Any manipulation to the system may cause damage to the device and will void any warranty.

10.1 Ordinary maintenance of the machine

(1)General Cleaning

Clean the outer part of the equipment regularly with soft damp cloth or microfibre cloth. You may also use a neutral detergent, and alcohol free wipes, but do not allow any liquid to seep into the machine.

(2)Clean the output lens(if you do, you must ask the seller first)

You should clean the lens regularly after use. The spatter of pigment and tissue which splash into the lens in the treatment period may influence the light energy and make the laser become hot. You can loosen off the lens with a screwdriver and clean the lens with anhydrous alcohol and a cotton swab. You must keep the gleaming convex surface towards the inside. Otherwise, it can break if the direction is wrong.

(3)Regular cooling water changes are required:

The frequency of water changing depends on usage;

If you operate the machine on a daily basis, change water every 2-3 months.

If you operate the machine once or twice a week, change water after 10-12 months .

Remove the screw cap from the "Discharge Water Hole" and "water in" hole, then drain approximately 2/3 of the water; then install the screw of "Discharge Water Hole"

Remove screw caps from the "Water Overflow" Hole and "Water In" Hole; refill the cooling water level as per installation instructions. After starting the machine, please allow the water to properly circulate for 5 minutes before let handle work.

PLEASE NOTE: The cooling water must be distilled water or pure water, and we advise you to use prepared distilled water or pure water which is sold in the market.

Mineral water and tap water will not be allowed to be used in case the impurity influences the normal work.

(4) You will be not allowed to take down the machine secretly.

If the machine breaks down, use pictures or videos to show the problem: including the sound of the machine, interface parameters, and whether the handle works; then contact the seller. Do not disassemble the machine for inspection without permission (even if you hire a professional repairman).

(5) Operate handle cleaning and replace.

Clean the handle light output place after the treatment ,because during the treatment ,some pigment granules maybe splash to the crystal ,that will be lower the laser output energy .We suggest to use the lens paper to clean .Or the use absolute alcohol to clean .

(6) Every treatment handle are all with working life .After using half a year (around 30,000,000 times) ,we suggest the customer to replace a new handle .Please contact your distributor or device factory .

10.2 The guide for examining the malfunction

(1) the whole machine can not open

- ① If the power supply has electricity and if the attaching plug is ok.
- ② If the red switch is on the open position, you should turn the hurry-up switch right and the switch is lifted.
- ③ To examine the fuse, and you must change it if the fuse is burnt down.

(2) The water is not flow as you open the machine.

① malfunction phenomena:

The water is not flowing or it doesn't flow smoothly. In order to make the machine safe, we adopt the close transportation way and reserve 1/5 volume of the water. Using the imperforation water tank in case leak water in the transportation, and at the same time the indication light is on but the purple X-light is not on when you press the preheating key.

② The correct processing methods:

Loosen off the imperforation water cap and add the water until to the standard water level and then change into the perforation water cap if the lever is too low. Restart the machine and press the preheating key. The key's adsorption is ok if you hear the sound "pa" and the water flows normally and the machine is going to the state of "stand up".

(3) There is no laser output when you kick the pedal.

- ① To examine if the machine goes into the prepared state.
- ② To examine if the pedal is normal and it will be ok if it is damaged.
- ③ To examine if the working key is pressed.
- ④ To examine if low energy is output. You can improve the energy through adjusting the energy key.

(4) The energy becomes weak or there is no light comes out.

- ① The machine can not work as normal if the voltage is too low.
- ② The lens is dirty. You should clean the lens according to the right operation.
- ③ The X-light is burnt down; you should change the laser gun.
- ④ You must stop working and use the machine in 30 minutes if the apparatus.
- ⑤ Loosen off the light head and examine if the former lens is damaged.
- ⑥ To examine the handle and the light head carefully if these parts is leak water. You must change them if there is a leak phenomenon.

(5) You may get an electric shock when you touch the machine.

- ① Because the weather is dry and we advice you wear as less chemical fiber clothes as possible.
- ② You should use the three grounding plugs and the electrical outlet must have grounding line.
- ③ the voltage is unstable, you should collocate a voltage stabilizer.

(6) the machine leaks water.

- ① Manipulation handle leaks water.
- ② Water leak because of the strong shake in the transportation.
- ③ The water tank and the water pump leak water.

Please send the equipment to the company at once or counterclaim from the freight company according to the above situation.

(7) There is noise in the operating process when you press the preheating key.

- ① If you don't use the instrument for a long time, the instrument will simmer slowly. Please repeat the boot.
- ② Please raise the temperature appropriately if indoor temperature is too low. You can install the air conditioner.

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- ③ If the lines of the instrument lights appear to be imaginary or stopped, please check the lines immediately.
 - ④ Please keep indoor dry if indoor humidity is too high.
 - ⑤ If the xenon is burnt out, please replace the xenon lamps.

(8) Energy will be weakened in the use of instrument.

① If there are impurities adhered to the treatment head lens, it will lead to block the light. At the moment, please check the lens. If there is pigmentation, please use ethanol to wash it.

② If the humidity of the operation handle is hot, please let the instrument rest for 30 minutes or replace the cooling water.

③ Check the lens. If it is smashed, please contact the manufacturers immediately.

10.4 Troubleshooting Guide

1. The machine will not start

Check the power supply has electricity and the attaching plugs are securely inserted both ends and socket is switched on

Check the red emergency button is released.

Check key is in correct position

Examine fuse and replace if necessary

2. The water cycle is abnormal when you start the machine

Check the water level, if there is not enough water inside to cycle properly this will trigger the water level cut-out switch.

Holding the tube of the hand piece, then start the machine to feel the water cycle.

Replace the cooling water inside as per instructions and shake the machine gently to reset the water level switch.

3. There is no laser beam output when you press the pedal.

Check that the machine is in the correct working state

Check the pedal, cable and connecting plug for damage, if any part is damaged contact us for a replacement.

Check the working key is pressed.

Check energy level output. You can increase the energy through adjusting the energy key.

4. The energy becomes weak or there is no light that comes out.

The machine can not work as effectively if the energy is too low, increase energy level

The lens is dirty. You should clean the lens as directed.

The X-light is burnt out; you should change the laser gun.

You must stop working and not use the machine in 30 minutes if the apparatus has overheated.

Loosen off the light head and examine if the primary lens is damaged.

Check the handle and the light head carefully for signs of water leakage. You must change them if there are any leaks.

5. You may get an electric shock when you touch the machine.

Dry weather and chemical fibre clothes can increase static shocks.

You should use the three grounding plugs and the electrical outlet must be correctly earthed.

The voltage is unstable, you should introduce a voltage stabilizer

6. The machine leaks water

Manipulation handles leaks water.

Water leaks because of strong shaking or dropping during transportation.

The water tank and the water pump leak water.

Please send the equipment to the company at once or counter-claim from the freight company according to the above situation.

7. There is noise in the operating process when you press the preheating key.

If the device has not been used for a long time, the instrument will simmer slowly.

Please turn off and restart the machine.

Please raise the temperature appropriately if the indoor temperature is too low. You can install air conditioning.

The fans are broken or the fans have friction with other parts. Please change a new fan or clear the fans obstruction.

The indoor humidity is too high, keeping the room dry.

If the xenon is burnt out, please replace the xenon lamp.

8. Energy weakens gradually during use of instrument

Any impurities adhered to the treatment tip lens will lead to blocking the light, please check the lens. If there is any pigmentation, dirt or dust etc.; clean as directed. Check if the operation handpiece is hot, please let the instrument rest for 30 minutes or replace the cooling water.

System trouble shooting

Trouble	Solution
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Phenomenon	
Screen without display	Check the electric wire
	Check the circuit-breaker , fuse wire
	Please check the power supplier switch
	Please contact the distributor or device producer
No reaction of the handle switch button ,and no reaction by key	Please check whether the power supply switch behind the device is on or not .If on ,the trouble is still ,please contact the distributor or device producer
System can not be initialization	Check the power supplier
	Please contact the distributor or device producer
The energy output lower or no laser output	The voltage is too lower result the handle can not work normally
	Please check whether there are dirty thing on the laser reflective mirror ,if yes ,please clean it .
	The handle inner is destroyed ,please replace new treatment handle
	Disassemble the treatment handle to check whether the head reflective mirror are destroyed or not .
	The treatment handle is too hot ,please turn off the machine ,cool down around 30 minutes ,then use again .
	Please check the handle water leaking or not .
Treatment handle dropped out of the handle holder	Please check the handle destroyed or not ,if yes ,please replace new handle .
During the treatment .when therapy press the handle button ,there are “zizi “noise	The device is not turned on for too long time .It is hard to motivate.
	The treatment room temperature is too lower ,please higher the room temperature .
	Please check the electric of the device normal or not
	The humidity of the treatment room is too higher .Please lower the room humidity.
Cooling system temperature is too	Turn off the device minutes ,then return on again .If the cooling system is still abnormal ,please contact distributor or device producer
The treatment handle output energy is too lower	Please check whether there are dirty thing on the reflective mirror ,If yes please clean it .
	If the handle is hot ,please turn off the machine 30minutes
	Please check the head of the reflective mirror good or not ,if there are any

	destroy .Please contact your distributor or device producer .
The treatment handle output energy is too lower	Treatment head the working life is over.Please contact your distributor or device producer .
Laser emitter is broken	Please contact your distributor or device producer .

Check the lens. If it is broken, please contact the manufacturer or distributor immediately.

Chapter 11 Storage and Moving, Safety

Precautions

- (1)The machine is portable, easy to move.
- (2)Keep and use the original packaging when moving or storing
- (3)Do not shake or drop the device
- (4)If relocating in the treatment room, keep device level when carrying.
- (5)Must not hit the light head of treatment, because it has an exact optics system.
- (6)Keep the water pipe and treatment handle securely packaged by sprung materials.
- (7)Before carrying any long distance, empty cooling water from the water tank.

Other Information

- 1.Put the machine on the flat and stable surface.
- 2.Check the main machine, accessory and the power cable are intact well before use.
- 3.The machine is fragile. Do not drop it.
- 4.Clean the machine with a wet cloth but make sure no liquid penetrates.
- 5.Do not operate the machine with wet hands.
- 6.Do not bend or turn the power cable and the wires.
- 7.Before you clean or transport the machine, make sure that it is switched off and the power cable is unplugged.
- 8.Put the machine in a ventilated area. Do not cover the fan or the machine nor put any objects on it.
- 9.Do not use the machine in the toilet or near a microwave or oven.
- 10.Make sure that the power cable is not worn or broken before you plug it.
- 11.The operator must be trained to be familiar with the structure and performance of the machine and master how to operate the system.

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12. Users under 18 years old are not allowed to use the machine.
 13. The machine cannot be used on animals.
 14. Do not use the machine for other purposes than those described in this manual.
 15. The operating temperature should be in good control.
 16. The treatment button should always be pressed by hand.
 17. When there is an error, the system will show a message to the operator. No operation is allowed in this case.
 18. The continuous working time of this machine is up to 12 hours per day.
 19. Turn off the power after the operation. When not in use, be sure to unplug the power cable from the power outlet.
 20. Please take good care of the machine. The power cable and accessories should be carefully inspected before operation. If there are any traces of damage, stop using them and replace them with a new one.

Part of its security measures is as follows:

1. 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;
2. Filter / light guiding crystals 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 shells are to prevent electrical leakage causing harm to people.

【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 physicians and appropriate disposal therapy rooms. 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 used shall be marked remarkably.

【Primary Warning】

To guarantee safe 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 a light head makes water. If it is on in this situation,

turn it off as soon as possible.

【Warning of Intense Light】

- 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 the operation part when used.

1. **【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 only in a careful and slow 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 of skin before

surgical operation. Soapy water or medical distilled water can be used if necessary;

c. If the treatment head or any other parts of this apparatus are disinfected with alcohol, they shall not be used before they are completely 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;

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 it turns its diesel, or the apparatus is still power-down.

[Self-inspection]

When the apparatus is powered on, the system circuit will start self-inspection. In this situation, keep the apparatus running in proper motion for 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

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