

INCREDIBLE DermaBrite Multi-PICO Laser

User Manual



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Preface

Welcome to use INCREDIBLE DermaBrite Multi-PICO Laser. It is a high-tech machine that can offer the only non-invasive, effective method for removing tattoos without scarring, plus treating other cosmetic issues such as fine lines, enlarged pores, and pigmented lesions.

If it is the first time that you use this system, be sure to carefully read this manual before powering on the system.

It is not suggested to use the machine in an environment with existence of electromagnetic interference, vibration or other environmental interference. During operation, the system must be sure to not interfere with other equipment/devices.

Avoid to use this system when there are the flammable anesthetics or oxidative gases such as nitrous oxide (N₂O) and oxygen. When there is enough oxygen in the air, some materials such as the cotton and wool materials may easily be ignited by the high temperature resulting from the normal operation of laser equipment. The solvent and combustible solution for cleaning or sterilization purpose shall be volatilized before using laser equipment.

The abandoned components from the scrapping or replacement of this system should be delivered to the designated agency or manufacturer for processing, so as to avoid environmental pollution.

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Chapter One: Introduction

I. Theory

INCREDIBLE DermaBrite Multi-PICO Laser was developed to remove unwanted tattoos and rejuvenate skin by improving skin texture and discoloration. It can deliver ultra-short bursts of energy to skin in trillionths of a second. The pulse width is 100 times shorter than nanosecond technology, enabling unmatched photomechanical impact for better clearance with fewer treatments and less fluence.

II. Application:

- Tattoo Removal
- Pigmented Lesions (age spots, sun spots, birthmarks, Nevus of Ota, freckles, moles, cafe-au-lait spot, etc.)
- Skin Rejuvenation (increases collagen production to reverse the signs of aging)

III. Product Specifications

Laser type	Picosecond Nd yag laser
Laser wavelength	1064nm&532nm
Treatment heads	2pcs
Frequency	1-10HZ
Energy	10-500mj
Pulse width	500ps
Spot size	2-10mm
Beam of light transmission	Balance weight arm, transmission power more than 95%
Indicator light	Red diode laser aiming light, wavelength 650nm
Cooling system	Cooper-fin fan + water
Program Language	English or Customized language
Dimension of machine	100x41x98cm
Dimension of package	106x59x125cm
N.W.	67kgs
G.W.	130kgs
Packing	Aluminum alloy case
Voltage	220V / 110V

IV. Features

- ultra-short pulse width lasts mere trillionths of a second, 100 times shorter than nanosecond technology
- more comfortable treatment, less painful
- more effective, fewer treatments needed
- without injury to the surrounding skin, faster recovery time
- far more effective at removing certain stubborn tattoos colors (greens, blues, and reds)
- little possibility of post hyper pigmentation
- Focus lens technology, effectively converting laser energy into gentle pressure waves, which is perfect for skin discoloration

V. Contraindications

- The patients with the keloid history and photosensitivity diseases.
- Pregnant women and the patients with the malignant tumor.
- The patients with a history of taking Isotretinoin / Accutane within 6 months.
- The patients with a history of skin infections, cold sores or herpes simplex virus in the treatment region should not have this procedure until they are treated for these conditions.
- The treated areas are allergic to hydroquinone drugs or other bleaching agents.

Chapter Two: Safety Regulations

I. Safety Introduction

Only people who have been trained can use this system. No matter the operator, the assistant, or the maintainer needs to understand this chapter well, though safety has always been taken into consideration during our design process.

- a) When the device is turned on, the auto-inspection system is initiated and kept working through whole working process.
- b) Independent safety circuit design can cut off power supply immediately while electric leakage happens.
- c) The operator can also use the Red "Emergency" button to cut off the power supply immediately under any emergency situation.

【WARNING】

Please read following notice carefully for safe operation.

- a) except the authorized technicians, any others are not allowed to check and repair the system, especially the inside components including electrical source, cooling system, optic organs and treatment head.
- b) make sure the voltage is accordant to your resident voltage.
- c) maintenance must be done after turning off the machine and unplug the power cord. Otherwise, there is risk to hurt people or damage the equipment.
- d) stop using machine when there is crack or slack parts on treatment head.



Warning

INCREDIBLE DermaBrite Multi-PICO Laser can emit high fluence beam, in order to protect the eyes, the users and patients must wear appropriate safety goggles in accordance with (NOHD) standard.

Pay attention to the following precautions:

- *DO NOT point the laser directly to the eyes and skin.
- *DO NOT cut off power supply when the machine is releasing shots.
- *Be sure to get familiar with structures and specifications of the machine before using.

II. Electrical and mechanical safety

- a) keep the plastic housing closed, otherwise there may be risk.
- b) there is high voltage inside the device. It's possible that electricity stays in some parts even after switching off. So, it's not allowed to open equipment except the authorized technicians.
- c) before maintenance, please unplug power, open shell and observe first.
- d) moving the machine in improper way may cause injury to personnel. The device is well balanced and movable, but only move slowly and carefully.
- e) the device using three-wire power cord grounding the earth, good grounding is essential for safe operation.

【FIRE PREVENTION】

- a) The temperature will raise after absorbing light energy, so please take actions to avoid the flammable risk on treatment parts or surrounding area.
- b) Do not use ethanol, acetone or other flammable things on skin before treatment. If necessary, please use soap or water.
- c) When listerizing the treatment head or other parts with alcohol, please wait till dry.

【SAFETY SETTINGS】

There are some safety settings with equipment, so please know their positions and using methods.

- a) **Keys:** it's used to switch ON/OFF the power, only provided by the manufacturer.
- b) **Emergency button:** the red button is used to cut off power on emergency. Pressing it can disconnect power supply immediately. Turn it clockwise, the machine will back to working condition.

【AUTOMATICAL INSPECTION】

After turning on the machine, the system will do an automatic inspection. About 1-3 minutes running automatically, then it enters into operation menu.

【CLASS OF EQUIPMENT】

- a) Class: III
- b) Anti-corrosive liquid: general
- c) Not allowed to use in the air mixed flammable anesthetic and nitrous oxide
- d) Operation manner: continuous operation

Chapter Three: Installation

I. Installment conditions

Installation Environment

- a) Ambient temperature range: 22°C~28°C;
- b) Relative humidity range: $\leq 20\%$;
- c) Atmospheric pressure range: 860hPa~1060hPa;
- d) Power supply: 220V+10%, 50Hz; or 110V+10%, 60Hz

Transportation and storage conditions

- a) Ambient temperature range: -10°C~60°C;
- b) Relative humidity range: $\leq 100\%$;
- c) Atmospheric pressure range: 500hPa~1060hPa.

Package box

The package is as below pictures. If any damages happened during transportation, please contact us or carrier immediately!



Main Machine Package



Arm Case



Figure 1



Figure 2

The method of opening the packaging box:

- A. Pull up the wrench in Figure 1, to figure 2.
- B. Turn the wrench to open it

II.

Appearance introduction

③ Balance arm

① ON/OFF button



④

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⑤ Emergency

_____ button

②TFT color touch screen



Side View

④ Filter Window

Water Level ①

Water Outlet ②

Water Inlet ③

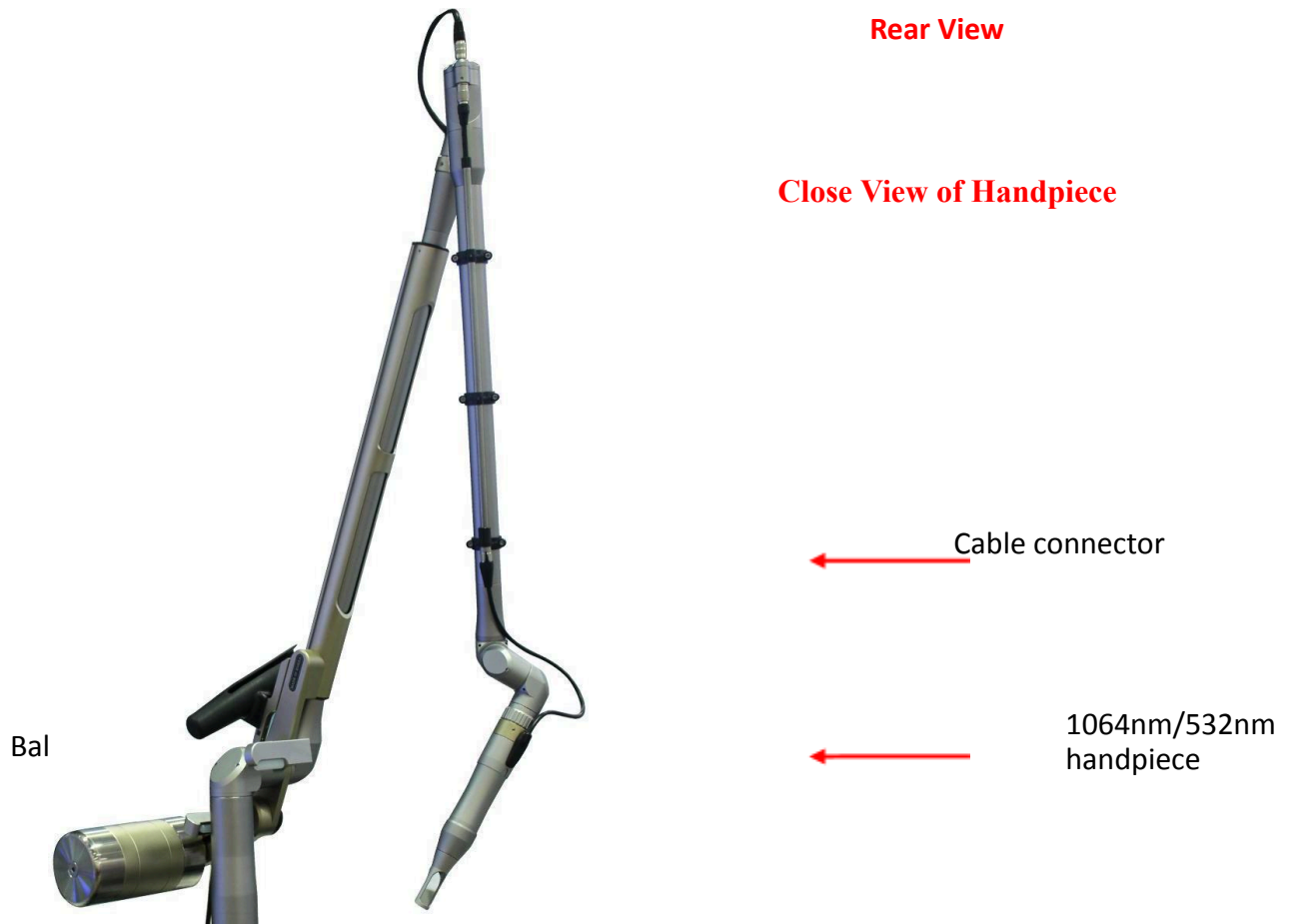
⑤ Foot Pedal
Joint

⑥ Remote
Interlock




Switch






⑦ Power Cord
Joint





Equipment list

Item	Name	Picture	Qty.
1	Arm		1 set
2	Power cord		1 pc
3	Safety goggles for doctor		1 pair

4	Safety goggles for patient		1 pair
5	Foot Pedal		1 pc
6	Water connector		2 pcs
7	Water funnel & pipe		2 sets
8	Fuse wire		1 pc
9	User manual	----	1 copy

IV. Installation

Installation and debugging of the device must be performed by professional technical personnel who have been trained by equipment manufacturer and are approved to be qualified.



CAUTION

- Do not install the product in the oily, smoky, damp and dusty area or the area which is easy to get splashed by water(rain)
- Install the product on a level area
- Do not bend the electrical cord or accessories using force or place a sharp or heavy object on them. (There may be a risk of electrical shock or fire.)
- Do not plug several power cords of electrical appliances into one receptacle at the same time. (There may be a risk of fire.)
- Check out for the rated voltage when you install the product. (There may be a risk of circuit damage or fire unless the rated voltage is not used.)
- The person in charge of the handling the appliance should be familiar with all safety regulations.
- Every accessories needed to plug in with accurate position
- Problems occurring due to carelessness in using or managing the system in the middle of using it are excluded from warranty coverage for service.

Handle arm description:

1. Place the appliance in a treatment room in accordance with above requirements.

2. Installation of Arm

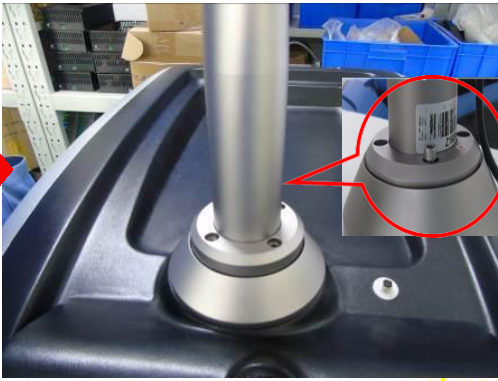
a) screw off the dustproof cover



b) using #4 spanner to disassemble the screws on main machine and remove the dustproof cover as shown in picture



c) connect the arm with machine socket vertically, turn the label on arm toward the back of machine and match the screw holes

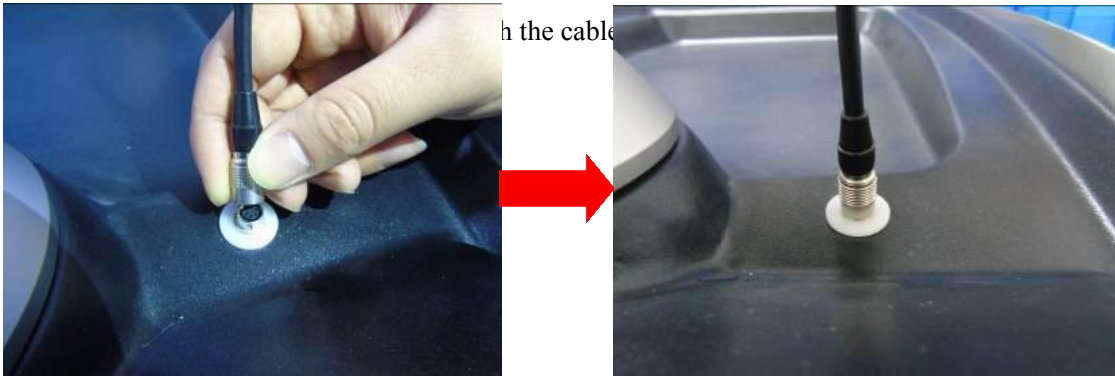


ward
of machine

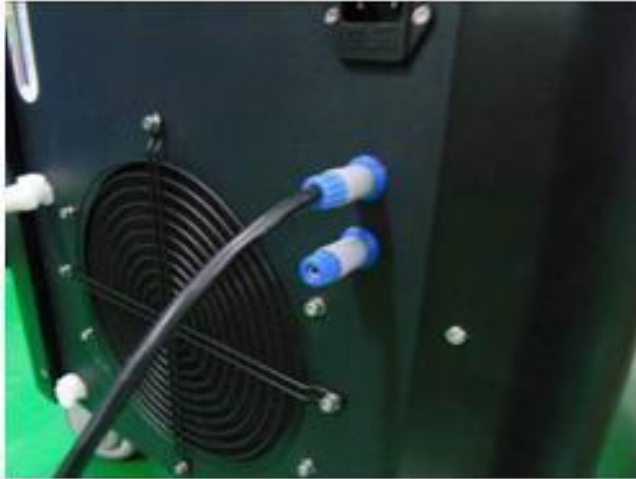
d) fix the screws



You are suggested to screw each of 4 screws halfway at first, then tighten one by one.



3. Attach the **Foot Pedal** and **Remote Interlock Switch**



← **Foot Pedal**

← **Remote Interlock**

4. Water

a. **Water Source:** deionized water(PH value of water 5.5-8, hydronium water resistance: $5M\Omega/cm^2$) or distilled water

b. **How to add water?** (**CAUTION: please change water every 1 month.**)



① attach the nozzle and water pipe&funnel to **Water Inlet**

② attach the nozzle to **Water Spilt**.

Attention: After filling water, please don't take off the nozzle from water spilt, because the air inside laser needs to come out from this nozzle. But it must be removed under transportation.

③ add water and stop when water level reaches yellow line.



① this nozzle should be attached on **Water Spilt**, removed only under transportation

② attach the nozzle and water pipe&funnel to **Water Outlet**, the water will discharge.

Attention:

Please change water every 1 month to keep water clean!

5. Connect power cord with device and plug into a wall socket with grounded, then turn on the **Power Control Switch**
6. Check the Emergency button is in release state
7. Switch on keys, the appliance is power on. Waiting for 5 minutes, the appliance automatically complete preheating and enter into operation interface.(If there are problems in the cooling system, the temperature can't be controlled to the preset temperature, this condition is regarded as faulty. The appliances can't enter into operation interface and will always remain at the initial startup image).



Startup Image



WARNING

- If you have any problems with this product, immediately stop using it and contact us.
- Do not put any inflammables on the product.
- Do not disassemble, repair or remodel the product at discretion of a user. Please contact us for help to repair it. (There may be a risk of electrical shock or fire).
- Please contact us for a check or repair of the product for the following cases:
 - There is a damage on a cable or plug, and the product doesn't work properly
 - The product was dropped and damaged
 - the product is wet with water.
- Please insert a plug in a wall socket with grounded
- Do not use a damaged electrical cord or aged receptacle. (There may be a risk of electrical shock or fire)
- Do not give a shock to the product or accessories

Chapter Four: Interface Operation Instruction

I. User Interface



Without Logo

1

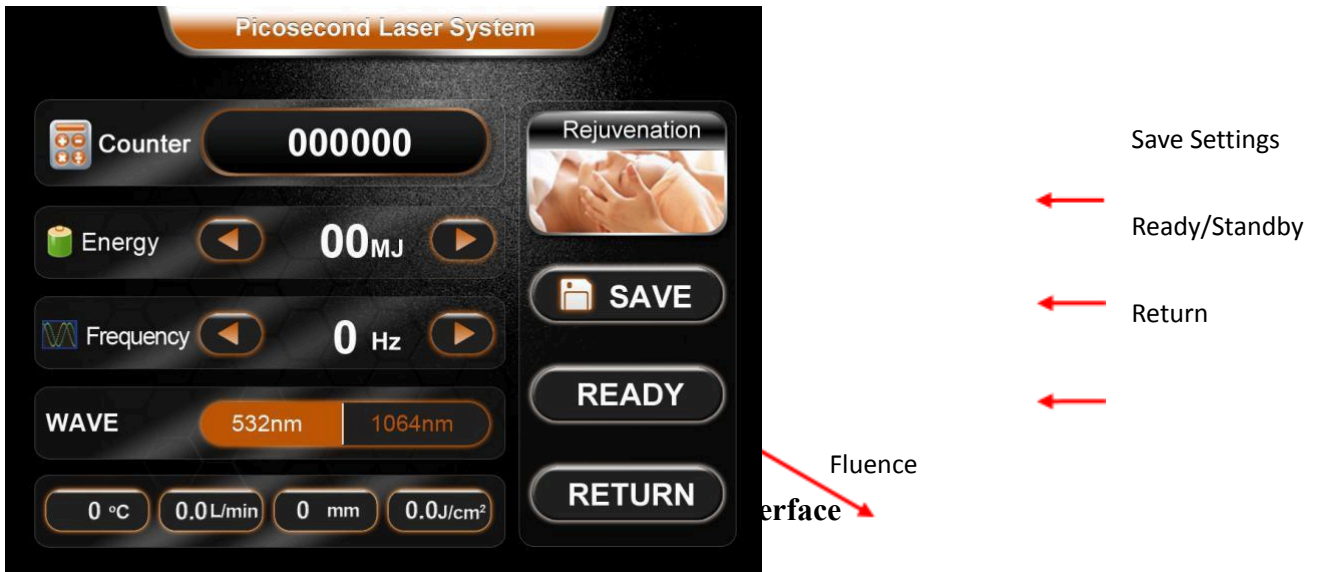
With Logo

2

Auto-Check Process



Function Selection Interface



II. Setting Instruction

Counter:

Counter of total shots

Energy:

Under Standby status, press "left" or "right" arrow to set energy; 532nm(10-250mj, step 10mj), 1064nm(20-500mj, step 20mj)

Frequency:

Press this button to enter Ready Status.

Under Standby status, press "left" or "right" arrow to set fluence, 1Hz,2Hz, 5Hz,10Hz optional

Wavelength:

Change wavelength between 532nm & 1064nm

Water temperature

Water temperature monitoring, when the temperature is over 45⁰C, the screen will show alarming interface and buzzer sounds. Please troubleshoot before using.

Water Flow

Water flow monitoring, when water flow is less than 2L/min, the screen will show alarming interface and buzzer sounds. Please troubleshoot before using.

Spot Size

Spot Size can be adjusted on the handpiece. Range 1-10mm. Method as below:



Fluence

To show fluence

Save

To save settings

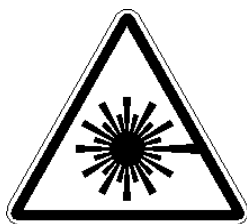
Ready/Standby

Press **Ready**, the button switches to Standby, the system enter ready status.
Press **Standby**, the button backs to Ready, the system enter standby status

Return

Under Standby status, press this button to back to last interface

Chapter Five: Clinic Application



Warning: please use the device after careful reading of the User Manual before operation!



DANGER

- Do not put the handpiece to people's eyes directly to prevent from eye damage
- Be careful not to directly look at the light and lest it be reflected on the reflective surface
- In order to prevent the emitted or reflected light from being exposed accidentally, all persons in charge who are using this system should be sure to wear the protective glasses.
- Also be careful lest the light face eyes. Even in case that the output is low, you may suffer a fatal eye injury.
- Do not pull the power cord using force or touch the power plug with a wet hand. (There may be a risk of electrical shock or fire).
- Stop using the product and unplug the power cord immediately when there is thunder and lightening or an earthquake. (There may be a risk of electrical shock or fire)
- Dangers of explosions and fire
- Do not operate the device in a place where there are volatile substances like ductile anesthetics, alcohol, gasoline or solvents
- We recommend you to use non-volatile substances or tools, if possible
- Always keep a fire extinguisher near the device

I. About skin

1. What is skin?

The weight of our skin accounts for 5% to 15% of our body weight, with a total area of 1.5 ~ 2 square meters, and skin thickness varies from people and parts, around 0.5 mm to 4 mm. The skin covers our whole body. It can protect all kinds of tissues and organs in our body from physical, mechanical, chemical and pathogenic microbial invasion. Skin is the largest organ of human body.

An adult has skin around 2 square meters, 1/20 of his body weight. The thickest skin in our sole is up to 4 mm, while the thinnest skin on the eyelids is less than 1 mm.

2. Function of Skin

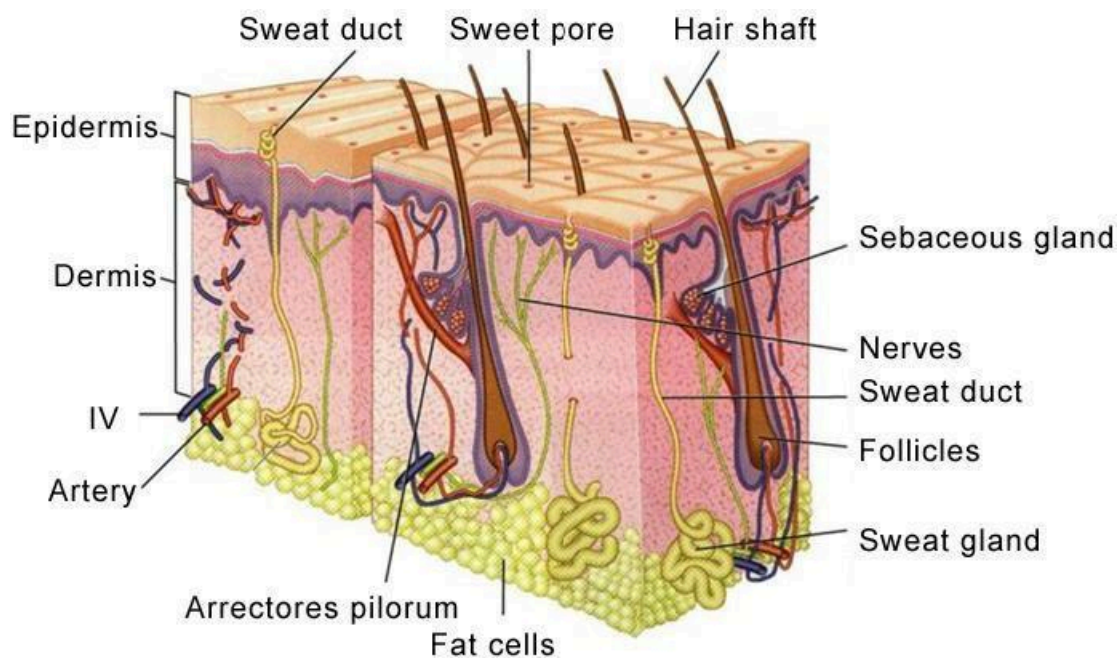
Skin has two aspects of barrier effect:

- 1) Prevent the loss of water, electrolytes and other substances in the body;
- 2) Prevent the invasion of harmful substances. Skin maintains the stability of human body environment,

while skin is also involved in the body's metabolic process. There are several kinds of skin color (white, yellow, red, brown, black, etc.), mainly vary from race, age and location.

3. Construction of Skin

Skin consists of 3 layers, the epidermis (uppermost layer), dermis (mid-layer) and subcutis (lower fat layer)



II. Treatment Theory

INCREDIBLE DermaBrite Multi-PICO Laser adopts the principle of “light induced blasting”. It can create ultra-short picosecond pulses that last mere trillionths of a second. Because the energy from the laser is emitted in such a brief period of time, the energy is concentrated into very powerful pulses, which can instantly go through epidermis and reach deep into skin, to shatter tiny fragments of ink or pigmentation particles and then be absorbed by macrophages and eliminated gradually.

1. Working theory

INCREDIBLE DermaBrite Multi-PICO Laser adopts 1064nm & 532nm wavelength laser as well as focus lens technology to collect and focus 70% of released laser energy. Each pulse energy can provide skin tissues 10% of effective shockwave, to shatter the melanocytes inside the epidermis and meanwhile transfer the shockwave deep to the dermis layer, stimulating growth factors to repair, promoting the renewal and new formation of collagen and elastic fibers, accelerating the metabolism of skin and excretion of melanin eliminate, so as to solve the problem of deep pigment from the root.

2. Applications

INCREDIBLE DermaBrite Multi-PICO Laser is mainly applied in the treatment of pigmented skin lesions, mixed hyperpigmentation, and traumatic pigmentation.

1) Moles and Spots

Nevus of Ota, Ito's nevus, Mongolia spot, naevus fusco-caeruleus zygomaticus, coffee spots, seborrheic keratosis, nevus spilus, junctional nevus

2) Body Tattoos, eyebrow tattoos

Pigmented skin lesions like body Tattoos, eyebrow tattoos, eyeliner tattoo, lip line tattoo and traumatic tattoo.

3. Types of Pigment and Causes

Pigmented spots refers to hyperpigmentation on partial skin, its color is obviously deeper than the surrounding skin. Some spots are innate, while others are acquired. Some are caused by sun exposure. There are also some not related to sun exposure. And some spots may recur after treatment.

1) Types of Pigment

- a) qualitative spots: the feature is stable, and does not change due to external factors, such as moles, birthmark, age spots
- b) active spots: the feature is unstable, and change due to external factors, such as freckles, chloasma, sunburn, pigmentation after skin damage, Lead mercury spots.
- c) epidermal pigmentation: melanin deposited in epidermis layer, which can be removed, such as freckles, nevoid lentigo, cafe-au-lait-spots.
- d) Dermal pigmentation: melanin deposited in dermis layer as grey, stone blue, brown color, e.g. ADM spots, nevus of Ota, etc.

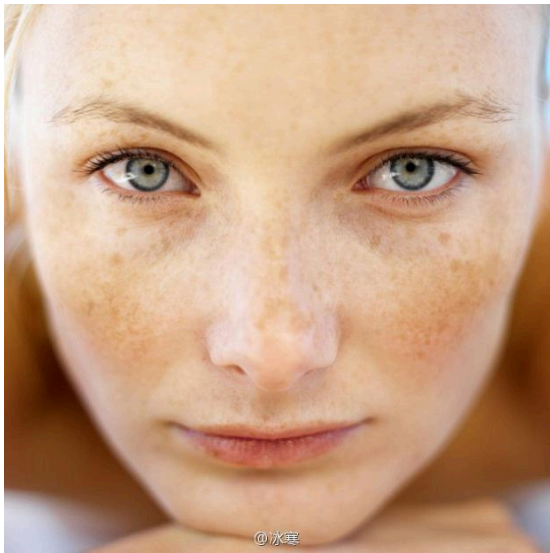
2) Causes

- a) genetic factors freckles (not all freckles are genetically determined)
- b) endocrine balance interrupted or endocrine disorder-----pregnancy, abortion, using contraceptive medicine or loop-shaped intrauterine device
- c) body diseases-----liver and kidney dysfunction, gastrointestinal dysfunction, disease of gynecological ovary, uterine appendage, and mammary gland, etc.
- d) chronic malnutrition chronic diseases, hepatitis B, tuberculosis, tumor, etc.
- e) ultraviolet radiation

4. Common pigmented spots

1) Freckles/Ephelides

Genetically determined or related, not related to body disease or endocrine disturbance. Quantity increases and color becomes darker with age and sun exposure.



Area	Shape	Age	Signs and Symptoms	Main causes
Symmetrically occurred on face, especially on both sides of nose, even whole face. Mainly on sun exposed area, not on hair area	Diameter 1-2mm spots	3-5 years old children	Scattered pigment spots(usually not link together), usually deep color dark brown	Major candidates are female, genetically determined. With age and sun exposure, the quantity increases and color also becomes darker

2) nevoid lentigo


Pathology shows increased density of melanocytes in the basal layer of epidermis



Area	Shape	Age	Signs and Symptoms	Main causes
Any body parts, not limited to sun exposure area	Spot size like needlepoint or millet	mostly occurred in childhood, high incidence at age of 16-40 years old	In flake shape or in lines, linking together like patches, slightly higher than epidermis, signs of desquamation	unrelated to sun exposure, no change in summer and winter

3) café-au-lait-spots

Mild abundance of intracellular melanin in the formation of epidermal keratinocyte, but the number of melanocytes did not increase. Cafe-au-lait-spots is a hereditary skin disease. The overactivity of melanocytes in spots results in a large number of melanin and the formation of pigmentation spots.

				
Area	Shape	Age	Signs and Symptoms	Main causes
Any body parts, mainly on non exposed area	Size from a few mm to a few cm	New born or infants(incidence rate about 10-20%)	In light brown or brown patches, uniform color, with clear edge and whole existence.	Not affected by external factors\genetically determined

4) Aging spots- Seborrheic Keratosis

The basic feature is outward growth, hyperkeratosis, acanthosis, papillary hyperplasia, and pseudocyst. Some damaged skin , in the proliferation of keratinocytes, majority black particles shows severe thickening stratum corneum and highly active melanocytes.

Prevention: sunscreen, using whitening products.

				
Area	Shape	Age	Signs and Symptoms	Main causes
Face, hands, arms and legs	Spot diameter around 1 cm, usually not linking up with each other	middle-aged female and male over 30's	light brown color and smooth surface at beginning; with age, color becomes darker, and thickening skin protrudes from skin surface.	Has clear boundary with healthy skin, related with aging and sun exposure

5) Chloasma/Melasma

It is a type of hyperpigmentation on face, mainly caused by endocrine disorders, mental stress, a variety of diseases(Liver and kidney dysfunction, gynecological diseases, diabetes, etc) or lack of vitamins or chemical stimulation.

Prevention: sunscreen, using skin protection barrier, avoiding excessive cleaning and rubbing skin, taking vitamin C, vitamin B.



Area	Shape	Age	Signs and Symptoms	Main causes
Cheek, forehead and area around mouth	Large colored patches, symmetrically occurs, with irregular edge	Occur after 20's, high incidence at age of 30-40's; 70% of postpartum women will have chloasma.	Brown, reddish brown, or chocolate brown color	Closely related to body diseases or endocrine disorders, also affected by sun exposure. Ultraviolet light can deepen the color.

6) Nevus zygomaticus

Also called naevus fusco-caeruleus zygomaticus or Acquired nevus of Ota, a type of melanin pigmentation which is prone to occur on cheekbone.



Area	Shape	Age	Signs and Symptoms	Main causes
Cheekbone area	Large colored patches, symmetrically occurs, with irregular edge	major candidates are female at age 16-40	Symmetrically distributed on cheekbones, spot diameter around 1-5mm, black grey color	Closely related to body diseases or endocrine disorders, also affected by sun exposure, Ultraviolet light can deepen the color.

7) Naevus flammeus

The histopathological changes shows the expansion and malformation of superficial capillary network in dermis layer.



Area	Shape	Age	Signs and Symptoms	Main causes
Face, neck and scalp, usually unilateral occurred	Irregular patch, diffused distribution	Newborn	Uncertain size, with clear edge and smooth surface, no inflammation response, not itching	congenital capillary malformation

8) Moles--- Nevo cellular nevus



Area	Shape	Age	Signs and Symptoms	Main causes
Any parts	Smooth surface, slow development	Infancy or puberty stage	Dark, brown or yellow color, with clear edge, higher than skin surface or flat on skin, with or without hairs	None

9) Sunburn or erythema

Caused by sun exposure, irregular flakes, occurred on sun exposed area

10) Lead mercury spot

Black or bronze color, redder than Chloasma, difficult to remove.

5. Specific analysis of the classification and characteristics of spots

1) Active spots

- ◆ Chloasma: Brown, light brown or yellowish color, smooth and not protruded on skin; Major candidates middle-aged women, irregular flake shape, occurred on cheekbones, around nose or forehead; caused by chronic diseases, gynecological diseases, or long-term oral taking of contraceptives.
- ◆ cyasma: occurred after 2 or 3 months of pregnancy, yellow or dark color; irregular flake; disappear in 1 or 3 months after delivery, also possibly not disappear anymore or occur in lactational period.
- ◆ butterfly rash: butterfly-shaped patches on the skin, yellowish brown color, symmetrically on both sides of nose or middle.
- ◆ sunburn spots: caused by ultraviolet radiation, irregular shape, gray or gray brown color; the area

expands and the color deepens with sun exposure. May occur in summer and disappear in winter.

- ◆ blemishes: acquired, mainly on dry skin, not qualitative, but easy to become qualitative, difficult to remove.

2) qualitative spots

- ◆ freckles: usually occurs at age of 5 -7 years old; brown, light grey or light brown color, sesame-sized round spots, smooth and not protruded; genetically determined; treatment can lighten it but can't remove completely.
- ◆ Age spots: brown or light brown, occurs at age of 30-50 years old; not only on face also on back or hands. with age the color deepens and the number increases. The big ones will protrude on skin and become dark brown or black; It's regarded as lump in medicine, by unknown causes.
- ◆ Pigment spots: light brown, dark brown, black color; moles protruded on skin with rooted hairs (no treatments for such moles, to avoid mistreatment of skin cancer such as melanoma)
- ◆ Birthmarks: green, red, low occurrence of white, purple, blue and black.

III. Clinical Operation

It is important that the correct diagnosis has been made by the clinician prior to treatment, particularly when pigmented lesions are targeted, to avoid mistreatment of skin cancer such as melanoma.

1. Contradictions

- ◆ Patients with chemotherapy or cytotoxic drug therapy in past 3 months
- ◆ Hypertensive patients without getting permission of doctor
- ◆ Cardiopathy patients without getting permission of cardiologist
- ◆ Patients who accepted photosensitive drug therapy in past four weeks
- ◆ Patients who accepted steroids in the past 3 months (e.g., asthma)
- ◆ Patients with other diseases that may cause harm to health
- ◆ Patients with photosensitive, skin inflammation
- ◆ Pregnant women, epilepsy patients
- ◆ Patients had sunlight tanning or indoor tanning in past 4 weeks
- ◆ Ever suffered from herpes disease (after Zovirax treatment and permitted by the doctor, patients can be treated)
- ◆ Oral A acid (Accutane) therapy in the past six months
- ◆ Those who accepted radiotherapy, skin cancer patients
- ◆ The patients with the keloid history and Genetic albinism

2. Attentions for pigmentation removal therapy

- ◆ Lactation women (although no effect, but will cause psychological burden)
- ◆ People who take skin medicine (mainly vitamin A, which can cause deepening of pigmentation)

- ◆ Freckles, sunburn and age spots candidates must apply sunscreen for 4 weeks prior to treatment.
- ◆ Abnormal pigmentation melanosis, do patch test first, because there is a permanent black skin disease, which can't be removed.
- ◆ Liver disease will cause diseased black skin. The pigmentation is unstable and easy to relapse; this treatment is not recommended. Please explain to patients before treatment.

- ◆ Nevus zygomaticus, pigment will become darker after treatment. It needs multi treatments and remind patients importance of moisturizing care and sunscreen.
- ◆ Epidermal pigments usually can get better results than dermal pigments.

3. Clinical Procedures

- The first step in the treatment procedure is asking whether your patient has above contradictions. and did below things which decrease either the safety or effectiveness of their treatment.
 - a) Tanning (including Sunlamp) should be avoided for 4 weeks prior to treatment. If a patient is exposed to sun, sunscreen with an SPF of at least 30 applied as a thick layer 20 minutes before sun exposure is recommended.
 - b) Patients who had ablative treatment in past 4 weeks, such as laser, IPL, micro needle and chemical peeling, should wait after recovery.
 - c) Lotions, creams, makeup, and deodorant should be removed before treatment as well. These can obstruct or refract laser light negatively. Avoid scrubbing, peeling, and do not use sponge, eraser or other stimulative products to clean skin.
 - d) High temperature sweating therapy such as sauna or dipping bath before and after treatment
 - e) For dry skin, better to moisture skin continuously for one week prior to treatment.
- Evaluating your patient. Observe and document your patient skin color and the treatment area.
- Discuss the treatment goals with your patient and establish realistic expectations based on the treatment area.
- Be sure to photograph your patient's treatment area before the first session in order to establish a baseline. It's important to rephotograph the patient before subsequent treatments in order to document the results achieved.
- Explain to your patient that during the course of the session, she may feel a gradual build-up of heat into the area being treated. Many patients describe each pulse feeling like the snapping of a rubber band against the skin.
- Patient needs to remove all jewellery and makeup. Wash treated area with soap and water prior to treatment.
- Have your patient lied down. For eye protection, the last step before starting the laser treatment is to ensure that the treatment room door is locked, and that you, your patient and anyone else in the treatment room has put on protective eyewear.
- Set the system parameters to start treatment, recommended parameters.

Pigmentation type	Wavelength	Spot size	Energy	Clinical endpoints
Epidermis pigmentation	532/1064nm	2-5cm	100-300/50-100mj	Epidermis skin become whitening, inflamed, and sometimes errhysis
Epidermis-dermis pigmentation	1064nm	6-8cm	100-300mj	Pigmentation color lightened, well distributed errhysis, redness and rising skin temperature
Dermis pigmentation	1064nm	6-8cm	200-400mj	Whiten skin, well distributed errhysis
Tattoos (dark,	1064nm	2-8cm	200-300mj	Whiten skin, tattoo faded

blue, cyan)				
Tattoos (red, coffee, brown)	532nm/1064nm	2-8cm	200-300mj	Whiten skin, tattoo faded
Carbon skin rejuvenation	1064nm	8cm	100-200mj	Carbon powder removed, slight redness, epidermis a little warm

- Apply the handpiece to the treatment area, with your foot holding on the foot switch to initiate release of energy on surface of the skin until you have reached the endpoint of treatment.
- Immediately following treatment, an ice pack may be applied to soothe the treated area.

4. Post Treatment

- redness may continue 2-24hours or even up to 72 hours, ice bag or frozen towel or cold spray can be applied interval 2-4 hours. This redness and burning sensation usually would disappear in 1-6 hours.
- some patients may have signs of erythema and itching, it's normal and would disappear in 3-5 days, can also use moisturized products or take anti-allergic medication for alleviation.
- in order to avoid hyper or hyper pigmentation, your patient should apply sun cream (SPF 30 plus) daily on the treatment area, and from sun bathing and tanning bed for 3 weeks.
- your patient should also avoid solar, hot bathes, and other leisure activities which can increase skin temperature for a period of 2 days following the treatment.
- Treated area may have errhysis, keep skin clean and dry, let it form scabs. And the scabs can't be taken off until they come off themselves, usually in 3-7 days. Don't touch water, not scratch or pick at the treated area, not doing make-up or intense exercise for sweating may cause infections.
- In 3 days following treatment not allowed to take Aspirin and alcoholic preparations (including alcoholic cosmetics, such as make-up water and fine foam or exfoliating cleanser. Also don't use irritating skin care products, recommended to clean skin gently with water and towel. No massage for one week in case scabs are removed.
- Swelling and blister are minimal. CRYO JET can be used together with skin repair products for redness. Blisters can't be pricked, and medicine should be used under instructions of doctors or therapists.
- Laser treatment is performed on superficial skin. Pigmentation color will deepen gradually within 24-48 hours after treatment and then turn black coffee or black, this will fade by itself at last.
- Treated area will become slight dry and rough, pigmented scabs will fall off in around 1 week. Pigmentation will fade in following 2-4 weeks.
- Skin moisture replenishment is very important after treatment. Applying mild anti-sensitive moisturizer products, and continue to use moisture and repaired mask for one week to avoid skin sensitive caused by dryness.
- Avoid using convergent function products or contain acid, salicylic acid and other irritating products.
- Following week patients need to avoid eating high calorie, greasy, fried, spicy or pigment food, such as spirits, tea, coffee, beef, mutton, seafood (shrimp, crab), barbecue, Hot pot and heavy soy sauced food.
- Following 2 weeks, patients can't do the electric mascara, permanent wave, hair dyeing, hair Coloring oil, to avoid allergic reaction
- For skin pigmentation problems caused by endocrine factors, there may be recurrence after removing. So, we should combine with other treatments, such as use of pigmentation removal drugs, oral vitamin C, Vitamin E, fruits and meanwhile adjusting endocrine disorders.
- As pigment has difference on size, type, depth, color, as well as individual skin color, metabolic capacity, age and other individual differences, the results also has difference on fading time and effects.

Therefore, with different pigment problems, treatment interval time also varies, please follow the therapist's suggestion.

3. Attentions during operation

- Treatment room should not place reflective objects, such as fish tank, wall mirror, large glass reflective objects.
- Treatment room must keep good ventilation conditions, air conditioning device set 15°C -30°C (optimal 25°C).
- If treated area has moles, we suggest to cover it with medical tape. Operator and patient should wear protective glasses and goggles. Operator must wear disposable medical gloves.
- Always start from low energy and do patch test before treatment, to avoid any adverse reactions to skin. If treated area turns to black or dark red, patients can't tolerate the pain, lower settings and retry.
- If treatment energy is too high, the skin will appear wrinkles and gray phenomenon. Skin was already burned, energy should be reduced immediately. Burned skin can't be treated until recovery.
- Please make clear records for all used parameters during treatment.
- For skin rejuvenation with carbon or without carbon:
 - don't touch tip on skin, keep it 1-2cm away from skin. (the far distance from skin, the bigger the energy)
 - it is suggested to be combined with use of carbon purifier device, which can absorb carbon particles to prolong lifespan of probe.
 - don't make overlapped shots in one pass, slight swelling is normal, it's the ideal endpoint.
- For deep pigment removal, the ideal endpoint is slight redness and swelling, signs of scraping veins, pigment color deepened, skin not whiten or no severe pain. Don't press probe hard on skin, just touch on skin gently and make first pass horizontally and then second pass vertically, repeat 1-3 passes.
- For superficial pigment removal, the ideal endpoint is slight swelling, and pigment turns white first and then darker (meanwhile surrounding skin has redness). Don't press probe hard on skin, just touch on skin gently and make first pass horizontally and then second pass vertically, repeat 1-3 passes.
- For superficial pigment spots, after first shot if pigment didn't become whitening, increase energy a little bit and give second shot. But if first shot made pigment become whitening, it's not suggested to give more shots in case it will have permanent concave scar.
- please note machine should be placed 60cm away from wall to ensure good heat radiation.

IV. Sessions

3-5 treatments required, interval time should be 4-5 weeks. No further treatment is allowed before recovery.

Chapter Six: Safety Protection

I. laser safety

INCREDIBLE DermaBrite Multi-PICO Laser releases high intense infrared radiation, which can cause damage to tissues, especially eyes. Therefore, to avoid the accidental damage to body, all doors and windows in the treatment room should use high density shielding material to shield laser light. Warning signs must be used outside the treatment room.

This system emphasizes on function and safety. It has complete safety check program. In view of the operation of laser high intensity, high energy output, all the relevant personnel must observe the following prevention and measures. Before operation, check whether the parts are installed correctly and the insulation of the power cord is intact, and ensure everyone in the treatment room has put on protective eyewear. Avoid eyes or skin from direct or scattered radiation.

- Do not look at laser light or reflected light directly, the direct and reflected laser light contains sufficient energy to cause serious damage to the eye.
- Anyone who does not wear proper protective glasses should not be close to the laser when the laser is working.
- Please do not do maintenance outside the system drawing in the manual, and the maintenance should be done by the manufacturer or the agent authorized by the manufacturer.
- Do not place the system in a flammable environment such as narcotics, oxygen, etc.
- Besides treatment area, do not point the laser to another place. please confirm the output of laser points to treated area before releasing shots.



Alarm: before using the laser or during operation, if the operator doesn't use the screen controller and adjusting device or does not operate the machine in a correct way, the operator and patient may be under dangerous laser irradiation!

II. System Safety

All components of this system has different design on electronic and mechanical safety. The following safety design is for prevention of inadvertent or improper operation.

1. **"Key switch"** it is an essential component to switch on or off the system.

Notice: when the system is not used, please take off the key to prevent any unauthorized use by other person.

2. **"Emergency switch"**, it's a convenient design for emergency use. Unless the power switch and the main switch is connected properly, the laser system can be used. Therefore, the clinical operation is very safe. After the emergency stop switch is pressed, the operations will be stopped immediately and the system is

switched off. Switch off the main switch, turn emergency button in clockwise direction

to bounce back, then switch on key again, the system is restarted.

3. To prevent wrong setting and also the needs of changing settings during operation, there is "**standby / ready**" switching function, only under standby state, the system is allowed to set parameters
4. **Pedal switch** is a switch control to release shots. The pedal switch has external protective cover to prevent misoperation, its cover protection grade s IPX1 (waterproof design). Do not spill liquid or used in a humid environment.
5. The "**remote control interlock switch**" is used to prevent the non - expected personnel entering the laser working area when the system is working. When the door is opened, the device will stop the laser output.
6. The system comes with protective glasses; optical safety performance fully meet all requirements of the European standard EN207:1998+A12002 and approved by European CE certification. Before releasing laser shots, please confirm everyone has put on protective glasses.
7. The system works only when following conditions are met:
 - ◇ the power is connected with system
 - ◇ switch on key
 - ◇ emergency switch is released
 - ◇ the system is in ready state and no fault after self-check

The operator should be trained and have practical experience, otherwise, he or she is not allowed to use the system.

III.NOHD

This system is Class IV laser. When the system is working, all persons in treatment room should put on protective eyewear to avoid direct or reflective laser light. The safe distance(NOHD) is 30.1M.

IV.Laser safety label

The warning labels on the device (front, back, both sides and laser handle) are as following:

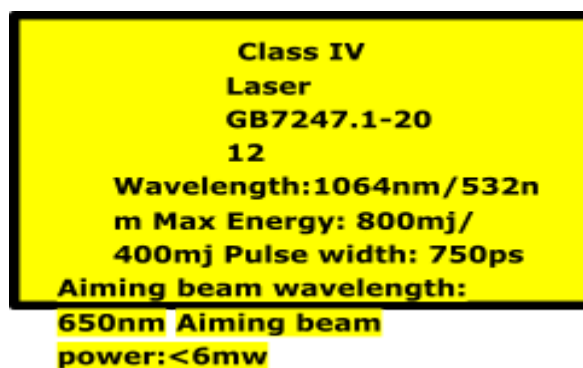


Figure 6.1: Laser label



Figure 6.2 Safety Label

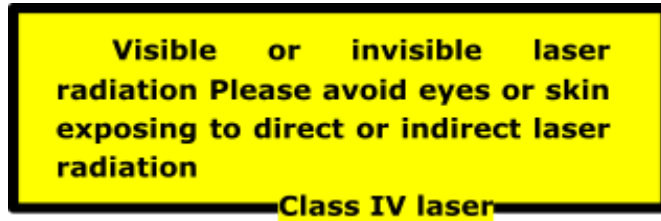


Figure 6.3 Laser Class



Figure 6.4 Warning Label



Figure 6.5 Laser Output Window



Figure 6.6 Type B Application Label

Figure 6.1

Laser label on the back of the equipment below nameplate, describing max output, wavelength and laser type, the marking should be in accordance with requirements of 5.8 GB7247.1-2012.

Figure 6.2

Laser classification on the top of the equipment, stating Class IV laser, degree of radiation, to avoid eyes and skin from direct or diffuse radiation, the marking should be in accordance with requirements of GB7247.1-2012 5.6.

Figure 6.3

Safety interlock label on both sides of the equipment, stating that once the side cover has been removed or demolished the personnel may be exposed to laser radiation, the marking should be in accordance with requirements of GB7247.1-2012 5.9.2.

Figure 6.4

Warning label (see Figure 14 in GB7247.1-2012) below the output of transmission system in front of equipment, stating that this equipment is laser products.

Figure 6.5

Laser window label on right side of the output of transmission system, stating emission of the laser light. The marking should be in accordance with requirements of GB7247.1-2012 5.7.

Figure 6.6

Application Label on left side of the output of transmission system, stating application anti electric shock type B, the marking should be in accordance with the related requirements of GB9706.1-2007.

The laser light path adopts the fully closed design, which can effectively prevent the leakage of the laser radiation. It is prohibited to use the instrument when the seal cover is opened.

V. Prevention Measures

1. it's recommended to place the system in a special room, posting "Laser warning"、"Dangerous" laser safety signs in a conspicuous place.
2. the treatment room should have warning signs of "Entrance only staff allowed".
3. no reflective objects around the system in order to avoid accidental laser beam reflection and injury of people.
4. the system is recommended to be used and taken care by authorized person.
5. the user should take off the switch keys after using.
6. the user should wear the protective glasses in accordance with laser wavelength and power.
7. eyes should be protected from direct or reflected laser light.

VI. Electric Safety

1. Product ground protection terminal has been marked in accordance with relevant standards. The maintenance personnel should check whether the protection grounding wire has been connected well or not after calibration. When the device does not work, please do not turn on the power.
2. There is high voltage inside device and arm, non-trained and qualified service personnel is not allowed to open them; The maintenance personnel should pay attention to the related marks during repair process in case electric shock happens.
3. When the device is working, it has intense current, so it is forbidden to touch the electrode when the device is powered on.
4. The device uses single-phase 220V AC power supply, power 1500VA, the user should use the appropriate power supply conditions in treatment room.
5. The user should master the basic knowledge of electricity safety, and master performance and operations of this laser system.
6. Laser equipment should be operated under the permissive working conditions and environment.
7. The device's electrical safety classification: Protection against electric shock type Class I; the degree of anti-shock for application part is Type BF.

VII. Fire Prevention Safety

8. It is prohibited to place assorted things around the device. The power supply system should be ensured with sufficient capacity when the device is installed.
9. It's prohibited to place flammable and explosive material on the optical path of the laser or in area where the laser beam can reach. If the laser beam shots on flammable, explosive materials, it may cause fire or explosion.
10. It's prohibited to use flammable anesthetics or oxidizing gases such as nitrous oxide (N₂O) and oxygen. Some material like cotton-rich material will be fired by high temperature generated by laser beam. Solvents and flammable solutions used for cleaning or disinfection should been vaporized before using laser device.
11. Treatment room should be equipped with fire-fighting device.

Chapter Seven: Maintenance and Repair

I. Daily Maintenance

Maintenance is necessary to ensure that the machine continues to work in a good condition.

- a. please use distilled water or deionized water only! Change water every 1 month. If you seldom use or don't use, it's also necessary to change water every 3 months.
- b. please change filter every 2–3-month, method as below.

1) Take off the filter cover, as the picture in below:



2) Screw off the 4 bolts which fix the filter bandage, with a 3mm spanner



3) Press the end of the two air tube locks downwards with the two index fingers, the air tube will bound to loosen automatically.



4) Insert the air tube with the new filter, and fix the 4 bolts, then the replacement is completed.

- c. Please pay attention to the fiber on the arm not twisted, if the fiber is broken, there will be no infra

beam.



- d. You can use photo paper to test the output energy, but please put the photo paper inside a plastic bag to shot on it in case the black dusts will go inside the probe and damage the lens. If there is dust on the lens, please clean it with alcohol cotton (alcoholic 75%-95%).



- e. After using, please place the handpiece into bracket or safe place to prevent falling damage;
- f. Avoid the device housing being contact with items that are stained with gasoline, alcohol, thinner or chemicals, because it will cause the coating of the box to peel off;
- g. When cleaning the surface of device and treatment room, please pay attention not to raise dust, so as to avoid dust going inside device and affect the normal operation of the optical system;
- h. When the device is not used, please remove the key and press down the emergency switch to avoid unauthorized use by another person;
- i. The internal structure of the equipment is complex, please do not disassemble and contact the manufacturer after-sales service department when there is malfunction.
- j. In order to ensure normal use of the equipment, please contact the manufacturer or agent to buy spare parts for replacement.

Notice:

- ① The user only needs to do routine cleaning and maintenance, or carry out simple trouble shooting under the guidance of our professional staff. The repair should be done by the technical personnel authorized by us;
- ② The machine must be switched off and unplugged the power cord before making maintenance, otherwise the maintenance is dangerous to people and device.

II. Repair

Malfunction problems	Causes and Troubleshooting methods
Black screen when machine is powered on.	<ol style="list-style-type: none"> 1. The machine is not connected with AC power: check the power cord is plugged into the power outlet; the main control switch and emergency stop switch are ON or not; the connection of the socket is connected or not. 2. fault of low voltage switching power supply: check input and output of the low-voltage switch power if there is voltage or not. 3. Control board failure: contact our technical department.
Water flow switch fault	<ol style="list-style-type: none"> 1. offset of water flow switch sensor 2. the connection wire is not connected well.
Normal light output, black screen	12V power supply damaged or bad connection of sockets
Weak aiming light	<ol style="list-style-type: none"> 1. reflective lens has too much dust, clean it 2. indicator damaged or broken power for indicator damaged, please contact manufacturer for help.
Laser light deviated from indicator light	Adjust laser output coupling mirror
No light output after holding on the pedal	The cable of pedal is not connected well with machine
The adjustment of Frequency is out of control	Power supply malfunction
Under Ready status, weak laser output	<ol style="list-style-type: none"> 1. lamp lifespan 2. power supply or capacitor malfunction 3. light calibration or optical mirror damaged
Display out of control	Switch off device and restarted
Under Ready Status, output energy rises suddenly	<ol style="list-style-type: none"> 1. power supply malfunction 2. control board malfunction

Attentions:

- a) cannot see laser light with naked eyes, used only for skin treatment.
- b) when the machine is working, in order to prevent the eyes from being exposed to the laser, all the people involved in the operation should wear protective goggles.
- c) laser should not be used in the environment with flammable anesthetics or volatile organic compounds.
- d) special attention should be paid to operation due to the high voltage components inside the laser device.
- e) the machine should be placed 20cm at least from wall for good radiation.
- f) please do not touch the machine with wet hands.

Any questions or problems, please immediately contact our after-sales service before repair.