



Diode Laser System

ModelNo.: V-9

USERMANUAL

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I. Brief Introduction

1. Treatment principle

808 nm diode laser hair removal technology is based on the selective absorption of light and heat. The laser goes through the epidermis layer to reach the root of hair follicles, laser can be absorbed and converted into heat to destroy the hair follicle and the surrounding oxygen tissue; Meanwhile, the particular super cooling system can create certain anesthetic effects, to protect the epidermis layer from burn by laser energy, which ensures a safe and effective treatment. At the same time, 808 nm diode laser heats hair follicles to 48°C under lower energy density mode, hair follicle cells will lose activity after sustaining sliding from the handpiece, so as to get the effect of permanent hair removal.

The fast sliding, long pulse width, big spot, and super cooling advantages make this diode laser system to be the most fast, effective, safe and painless hair removal system.

Caution

Operators, maintenance staff and other related personnel must read the user manual carefully before operation.

2. Application range

Hair removal: permanently remove armpit hair, hairline, beard, whiskers, lip hair, body hair, bikini hair or any other unwanted hair for all skin types.

3. Equipment consist

This machine is microcomputer controlled. It is composed of three parts:

Mainframe, control panel, diode laser handpiece.

The operation and control parts are in the mainframe, the built-in integrated micro controller can monitor the operation of equipment continually.

The control panel includes: touch LCD screen (show the system working mode and parameters), key switch, emergency switch.

The treatment handpiece includes: laser emitter and transmission system, handheld operation by user.

4. Technical parameter

Lasertype	Diode laser
Laserwavelength	808nm
Outputmode	pulse emission
Spot size	10*16mm
Pulse width	40-450ms
Frequency	1-10HZ
Power	1800W

II. Safety

808nm laser treatment is a safe and reliable way to remove unwanted hair. As long as the trained and qualified medical personnel operate and maintain properly, it can make sure the safety operation. Operator and maintain personnel should fully understand the safety information provided in this chapter. The safety of patients, operators and other personnel comes first.

- Using sealed white gem crystal to transmit laser to the patient's skin, the light pulse can only be emitted from the front surface of the gem crystal.
- Shut off power by emergency switch when an accident happens.
- Key switch is to prevent abuse of the machine.
- The buzzer beeps when the device is ready to emit light pulse.

2.1 Cautions

2.1.1 Safety prevention

To ensure the safe operation,pls pay attentionto safety preventionand read the warning below carefully:

- A.** Except the company'sauthorizedtechnicalstaff, other person is forbiddento examine and repairthe lasermachine,especiallythe internalmachine,includingpowersupply, coolingsystems, opticalcomponentsand diode laserhand piece
- B.** Make sure rated voltageconformto the voltagein your country(220/230V)
- C.** Maintenanceonly after the machineis turned down and power cord is unplugged,to avoid dangerand damagingthe machine.
- D.** The gem crystalshouldalways be kept clean.It shouldbe cleanedaftereach treatment
- E.** It is banned to start machineif laser hand piece leak water;if alreadystart,it must be shut down immediately.

2.1.2Cautionsin operation

- A.** Diode laser may hurt the eyes or cause flame and burns.Necessaryprotectivemeasuresshould be takenin operation.
- B.** Excessively emit laser light to treatment area may damage the skin, cause proliferation/ atrophy/ abnormalpigmentation.
- C.** Do not look directlyat the laseremittedfrom the handpiece.
- D.** Do not air-launchlaser light, When not in use, the handpieceshould be hanged on the hook; when operation,the lasershouldpoint to the treatmentarea.

2.2 Opticalsafty

To ensureopticalsafety, pleaseobey the followingtips:

- 2.2.1.Only allowthe necessary,well-trainedpersonnelapproachthe machine.
- 2.2.2 Make sure that all operating related personnel are familiar with the controlling of the machineand know how to quickshut down.
- 2.2.3 There should be special-assignedstuff responsible for operating under the guidance of attendingphysician.
- 2.2.4 Do not operatethe machinein explosiveanestheticor other combustiblenvironment.
- 2.2.5 Do not look directat the laseremit from the hand piece or even the reflectedlight.
- 2.2.6 Do not point the light to other part excepttreatmentarea.
- 2.2.7Avoid the jewelry, watches,surgicalinstrumentsor mirrorsreflectingthe laser.

2.3 Fireprevention

- 2.3.1 Temperature rise after the object absorbs light energy, it is necessary to take
- 2.3.2 Preventive measures to reduce the danger of igniting the near inflammable.
- 2.3.3 Implementation of the preoperative skin treatment, please do not use alcohol or acetone and other combustibles. If necessary, use soap and water.
- 2.3.4 If use soap and water to clean or disinfect the machine, only after it dries completely can the machine restart.

2.4 System safety device

The machine is equipped with some system safety devices, all operating or related personnel must be familiar with their location and usage:

- 2.4.1 Key switch: open and close power, only the key provided by our company can start the machine, so as to prevent the illegal use of the machine.
Unplug the key after finishing operation, if no key, the system can not start.
- 2.4.2 Emergency Switch: This red mushroom emergency switch can be used to shut down the machine.
When depressed, the power will be cut off immediately no matter what system status, switch clockwise to release it, otherwise the device will remain in off state.
For safety sake, the emergency switch can be pressed only in accident.
- 2.4.3 Semi-automatic air-break switch: this switch is installed on the back panel below.
When the operating current over 16A (for 200/208V power supply) or 13A (for 220/230V power supply), this switch will turn off to protect the system. Pulling up the switch can restore power.

System Safety Classification

Electric shock protection: Grade I BF Grade

Corrosion prevention liquid: ordinary

Do not use the machine in the environment mixed of flammable narcotic and air or nitrogen oxide mixture.

III. System Instruction

This chapter introduces the main component parts, control system and technology parameters.

Notices:

Only authorized service engineers can open the side panel, and maintain internal each module.
Users are banned to disassemble the machine.

Control panel:

Users operate the machine through the control panel, it includes the following components:

A. Key switch

Used to power on and off, the machine can be open on by key provided by our company

B. Emergency Stop

It is used to in emergency. When depressed, the handle can not be lightened up and no light can be simmered out. Switch Clockwise to release it, otherwise the device will remain in the off state.
Emergency switch system will be implemented prior to key switch.

C. Display screen

Users communicate with the system through the LCD screen. It is an 8 inch LCD display screen, system status, user interface, user tips and instructions are displayed on it.

Environmental requirements:

System run-time environment temperature: 10 °C - 25 °C

Relative humidity: < 80%

Storage temperature: 0 °C - 55 °C

Relative humidity: < 90%

IV. Installation

This diodelaser machine can be used in clinic and beauty salon,

Only authorized technician can conduct installation, it include:

- Unpacking, place the machine in preselected location.
- Check the integrity of equipment and its components.
- Infuse deionized water.
- Installing the treatment head piece
- Connect the power.
- Test the Output accuracy, calibration parameters, and check the function of all the parts

4.1 Accessory list

No.	Item	Unit	Qty	Remark
1	Main frame	set	1	in the main case
2	Handpiece	pc	1	in the lateral foam box
3	Power Lead	pc	1	in the lateral foam box
4	Key Switch	pc	2	in the filter box
5	Goggles for Operator	pair	2	in the lateral foam box
6	Goggles for Patient	pair	2	in the lateral foam box
7	Spare Plugs & fuses	pc	2	in the lateral foam box
8	Water funnel	pc	1	in the lateral foam box
9	User Manual	pc	1	in the lateral foam box

4.2 Installation requirement

4.2.1 Before unpacking, it is necessary to check whether the installation location meets the requirements.

4.2.2 The yellow / green ground wire inside the sheath ground through wall line to make sure the equipment ground. Good grounding is essential for safety.

4.2.3 No transient input power, voltage and current spikes, collapse or surge. Therefore, the machine should not share transmission line with lift, air-conditioning systems, high-power motors and other large loads.

We suggest separating the machine's power cord and separate air-break switch.

4.2.4 The main fuse is 16A circuit breaker (air-break switch), it jumps down to cut off the power, otherwise, the power is reconnected.

4.3 Environmental requirements

Air condition: no non-corrosive particles

Corrosive particles (such as acids) can damage the wires, electrical components and optical elements.

Dust in the air should be as little as possible. Dust particles can absorb light energy and then be heated. The attached dust of the optical crystal surface will be heated, which may damage crystal.

Metal particles may damage the electrical components.

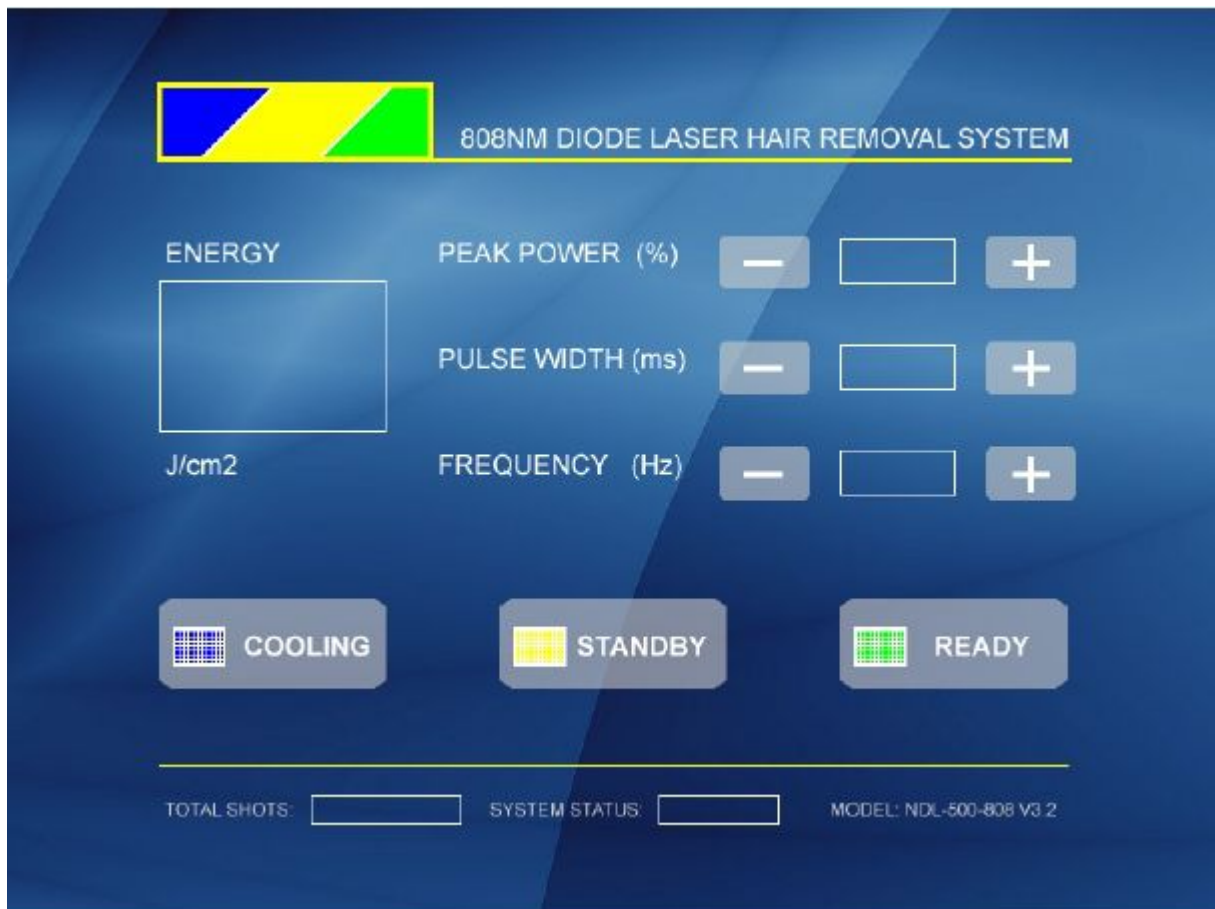
Temperature: To ensure the machine in top working condition, the indoor temperature should be maintained at 20 °C -25 °C, relative humidity can not exceed 80%. Thermal power is about 1600W, therefore, air-conditioned treatment rooms is better.

V. Operation

5.1 Operation Instruction

First, turn on the air-break switch, then the machine power on.

Turn on the key switch to start operation system, the interface displays as follows few second later.



- (1) laser power, percentageadjustable;
- (2) Pulse width (40-450 ms) , adjustable;
- (3) Repetitionrate (1-10Hz);
- (4) Fluence(energydensity)automaticdisplayby differentparameters;
- (5) laser head life monitor: total shots
- (6) Skin coolinglevel, adjustable;
- (9) Ready: turn on the handle(readyto simmer)
- (10) Stand by: turnoff the handle(can not simmer)

5.2 CloseDown

In the state of readiness(STANDBY),counter-clockwiseswitchingkey can turn off the machine.

In the case of emergency, press the emergencyswitch to shut down immediately.it can skip the normalshutdownprocedure.

When emergency shutdown, do not point the handpiece towards other person. Only in an emergencycan use the emergencyswitch.

Rotatealongthe directionof the arrowon the switch(clockwise)to releasethe switch.

5.3Treatment process

A. Clean

Clean the treatmentpart with disinfection



B. shaving

Shave the unwantedhair of the treatmentarea



C. Get coating

Coatingthe gel evenly(2-3mm)on the treatmentarea.



D. Parameter setting

Step adjusting the energy, frequency, pulse width, to get the suitable parameter.

5.2 Energy setting

Diode laser energy output value			
Repetition rate	Pulse width	Laser power	Energy(Fluence)
1hz	450ms	0%-100%	120j/cm2
2hz	200ms	0%-100%	120j/cm2
3hz	130ms	0%-100%	117j/cm2
4hz	100ms	0%-100%	120j/cm2
5hz	80ms	0%-100%	120j/cm2
6hz	65ms	0%-100%	117j/cm2
7hz	55ms	0%-100%	115j/cm2

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8hz	50 ms	100%	120j/cm2
9hz	40ms	100%	108j/cm2
10hz	40ms	100%	120j/cm2
<p>60-85 is safe range output power. It used sliding type operation, the energy adjusted according to the personal bear ability and the depth, thickness of hair. The highest energy is about 95, there is burning smell for thick black hair, and slight pain for sensitive area, hair can be pulled out after operation, even small villus.</p>			

E. Operation

The handpiece should touch the skin vertically,

Using cross method slide back and forth for 6-7 times with even strength.

F. Clean

After cleaning, smear cold gel for 3-5 minutes.



Before



After

5.4.AFQ

1. Why diodelaser have a good effect of hair removal?

Answer:

Diode laseremittingnear-infraredlight,go thoroughdeeply

to the root of hair follicles and heat up the melanin, the heat accumulateand spreadto the whole hair follicle,thereby,it can make hair loss regeneration and get a good effect of hair removal.

2. Does low energylaserhair removalwork?

Answer:

Clinicalshow:classicdiode laserremovehair effectivelyin 30J/cm² conditions.

3 .Can diodelaserremovethe hair of all the part?

Answer:

Any part of the unwantedhair can be removedby diodelaser, However,

The hair of differentpart has differentbiologicalcharacter,the reactionto laser is different,So the effect of treatmentwill differ. It meanssome differencesin the time courseof treatment.

4. How many timesdoes it need to removehair permanently?

Answer:

Laserhair removalusuallytakes4-6 times.

Differentparts of differentpeople,hair removaltimes may vary.

5. Will laser hair removalaffect the skin's functions?

Answer:

There are many physiological functions of the skin, such as perspiration, body temperature regulation,sensory function, the body's protective function, absorption and excretion function, immune function,and so on. Laserhair removalwill not affect the skin of thesefeatures.

VI. Maintenance

Maintenance after the machine shut down and power off. Maintenance when starting up may injure user and damage equipment system.

6.1. Cleaning Equipment

Clean the outer surface of the machine with wet cotton ball and mild detergent at least once a week, Please pay attention to avoid the liquid into the machine.

6.2. Clean Optical crystal

Optical crystal should always be kept clean after each treatment.

Firstly clean with a soft cloth, then use another piece of soft cloth dipped in ethanol to clean. At last, let it dry fully.

6.3. Infused deionized water

This machine uses inner loop cooling deionized water.

Appendix- Clinical Application Guidance

Taboo:

- Pregnant
- Using light sensitive drug
- Sepia skin after solar exposure
- Scar history
- Diabetes mellitus

Postoperative care

The skin blister or ulcers after treatment can be healed by antibiotic ointment or burn ointment, Low concentrations of ointment can also be used to reduce swelling, If the blister scabs, use moisture ointment like Vaseline to keep it moist.

Sun exposure

Patient should use high anti-sun screen to protect the treatment area from sunlight. Within one month after the treatment, Sun exposure may increase the regeneration rate of melanin, resulting in hyperpigmentation.

Makeup

Most doctors allow immediate use of makeup. However, they ask patient to stop making up and inform them once cracks or crusting

In most cases, patients can go back into their normal life or work immediately.