



SOLATRIX
Thermal Fractional

ETERNAL SUNSHINE
OF THE
SPOTLESS SKIN

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MEDICAL DEVICES



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Thermal Fractional

M E R S A M E D I C A L D E V I C E S

Eternal Sunshine of the Spotless Skin

SOLATRIX | Thermal Fractional

Thermal Fractional Technology

Solatrix is a fractional thermo-mechanical device that has a significant effect in rejuvenation and removal of skin lesions by transferring direct heat to the skin. Titanium tip of the device transfers heat to the skin with extremely low invasion; and by stimulating collagen production, it causes rejuvenation and eliminates wrinkles. The heat can be controlled by the contact time of the tip with skin and the penetration depth of the tip. Therefore, various effects are created depending on the amount of heat transferred. The transferred energy on the skin causes micro-cavities through evaporation and drying of the skin. These cavities have two therapeutic effects on the skin, depending on the depth: If the cavities are deep, by removing small parts of the epidermis and the thermal effect on the dermis, they stimulate collagen production by fibroblasts; and if the cavities are superficial, they act as channels that increase the skin's permeability to topical drugs. Increasing the permeability of hydrophilic drugs into the skin, which normally have difficulty passing through the stratum corneum, has a beneficial effect in the treatment of skin lesions. Solatrix has the same clinical results as laser devices. Compared to laser devices, however, the usability around the eyes, significantly less pain and inflammation during the treatment session, and a noticeably short recovery time are the distinguishing features of this device.

Mechanism of Function

The tip of Solatrix handpiece is a 10*10 titanium matrix mounted on a plate of copper and an incredibly precise electrical motor pushes the tip toward the skin.

- The heat generated in the heater of the device is transferred to the titanium tip through a copper piece. The tip temperature inside the handpiece rises to 400°C. Then the tip contacts the skin for a very brief moment and returns to its original place inside the handpiece.
- In each shot, a 1 x 1 cm area of skin is treated. The intensity of the effect of the tip on the skin can be controlled by changing two parameters of skin contact time and penetration depth. Contact of the tip with epidermal layer and the heat transfer causes water to evaporate and the skin to dry out, which eventually forms micro-cavities.
- The created cavities in the epidermis stimulate the process of repairing and building new epidermis to replace the damaged one.
- Also, the transferred heat to the dermis stimulates fibroblasts to produce collagen.
- Fibroblasts begin the collagen production, which ultimately leads to improved skin structure and rejuvenation.



Handpiece Design

The handpiece of Solatrix device is designed to be ergonomic and light, which facilitates the treatment process for the user. Also, the designers of this handpiece developed a safety space such that in each shot, the tip returns to its original place inside the handpiece, thus eliminating the possibility of unwanted burns.

One of the remarkable features of this handpiece is the embedded cooling system which suctions the hot air around the tip. Thus, high heat is not transferred to the user's hand, and it remains comfortable to hold although the tip temperature inside it is as high as 400°C.

The shock absorption system of the motor and the tip are engineered in a way that the movement of the tip in each shot does not cause the user's hand to shake. Also, LED light on the front of the handpiece improves the physician's vision on the treatment area.



Tip Design

Solatrix tip consists of a 10*10 matrix that comes into contact with the skin and is made of titanium, which is completely skin biocompatible. Under the titanium shell is a gold-plated piece of copper that allows heat transfer from the heater to the titanium shell to occur properly. The tip matrix is not sharp, and it does not penetrate the skin mechanically, so bleeding does not occur during treatment.

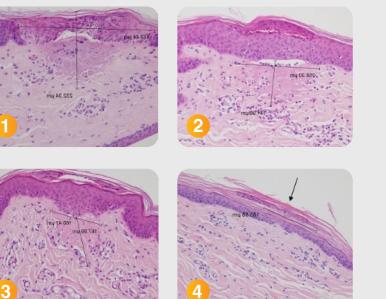
The handpiece features a self-sterilization mechanism such that the tip is sterilized before each treatment session without needing an external agent or process.

Technical Features

Biocompatible & Self-sterilizing Tip	Maximum Operating Temperature °C400
Embedded Cooling System with Air Suction	Input Voltage 220 VAC ±10%
Tip Temperature Control with Temperature Sensor	Tip Velocity 2.4 m/s
Adjustable Penetration Depth	Functional Category Type BF
Gold-plated Heat Transfer Surface	Insulation Class CLASS II
Skin Detection Sensor to Enhance Safety	Precision of Movement 140 µm
Single & Double Shot Switch	Thermal Element Power 100 W
Controllable Contact Time	Acceleration of Motion 142.5 m/s ²
Focused LED Light for Enhanced Vision	IP Group IP21

Histology Image of Treated Tissue

As can be seen in the picture, immediately after treatment ① heat destruction of collagen occurs without infection and swelling. 24 hours after treatment ② the destructive effects of heat on the dermis and epidermis are still visible. After three days ③ the epidermis is repaired, and the remnants of damaged collagen are visible. After 14 days ④ repairing is complete without scar formation.



Removing Wrinkles & Lines Around the Eyes & Lips

Eliminating Wrinkles on the Face & Body

Treatment of Acne Scars

Tightening Loose Skin

Eliminating Wrinkles on the Neck & Décolleté

Improves the Overall Color of the Skin

Removing Stretch Marks

Eliminating Skin Blemishes



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