Non-invasive face lift machine - Clinical Architecture & Performance Reference Manual

CLINICAL ARCHITECTURE & PERFORMANCE REFERENCE MANUAL: NON-INVASIVE FACE LIFT MACHINE

EXECUTIVE SUMMARY

This document serves as the definitive clinical and technical reference for the Non-invasive Face Lift Machine, a premium aesthetic platform engineered for dermatological and med-spa environments. The system leverages a synergistic combination of multi-wavelength diode laser technology, advanced contact cooling, and user-intelligent software to deliver safe, effective, and reproducible facial remodeling and skin rejuvenation outcomes. Designed for high-volume clinical workflows, the device architecture prioritizes patient comfort, operator efficiency, and long-term durability, establishing a new benchmark in non-surgical facial aesthetic interventions.

CLINICAL ARCHITECTURE & DESIGN

The system’ s core architecture is built around a high-efficiency, hermetically sealed diode laser engine capable of emitting at peak wavelengths of 755nm, 808nm, and 1064nm. This multi-wavelength capability allows for targeted energy absorption by various chromophores, including melanin and hemoglobin, facilitating a wide range of treatments from skin laxity improvement to pigmentation correction. The optical delivery system employs a proprietary homogenizing lens array to ensure a top-hat beam profile, providing uniform energy distribution across the entire treatment spot, thereby minimizing hot spots and reducing the risk of adverse effects. The chassis is constructed from aircraft-grade aluminum alloy, ensuring structural integrity and superior heat dissipation, while the integrated 10.4-inch high-definition capacitive touchscreen serves as the central command interface, providing

intuitive control over all treatment parameters.

KEY INDICATIONS & CAPABILITIES

The Non-invasive Face Lift Machine is clinically indicated for a range of aesthetic procedures, including but not limited to: improvement of mild to moderate facial rhytids (wrinkles), reduction of skin laxity in the jowl and submental (chin) areas, skin tone and texture refinement, and the clearance of benign pigmented lesions. The system's unique capability to perform both contact and non-contact scanning treatments allows for precise application to both large surface areas and delicate periorbital regions. The integrated skin cooling system, which operates via a sapphire contact window with a regulated temperature range of -5°C to +5°C, provides continuous epidermal protection, allowing for the delivery of high therapeutic fluences (up to 50 J/cm^2) with minimal patient discomfort and no significant downtime.

COMPLIANCE & STANDARDS

This medical device is manufactured and certified in strict accordance with the highest international regulatory standards. It holds the CE mark (Class IIb) for sale within the European Economic Area and complies with the essential requirements of the Medical Device Regulation (MDR) (EU) 2017/745. The

system is fully compliant with the FDA’ s 21 CFR Part 1040.10 and 1040.11 for laser products, with deviations reported and approved. The manufacturing facility is certified to ISO 13485:2016 for quality management systems, and the device meets the safety requirements of IEC 60601-1 (Medical Electrical Equipment) and IEC 60825-1 (Safety of Laser Products).

TECHNICAL SPECIFICATIONS

The device is engineered for optimal performance in professional clinical settings. It operates on a standard 110/220V AC mains supply, drawing a maximum power of 1200W. The integrated cooling system comprises a multi-stage thermoelectric cooler (TEC), a sapphire contact plate, a closed-loop water circulation system with an integrated reservoir, and forced air convection, ensuring continuous and stable cooling during prolonged treatment sessions. The device includes a single, multifunctional handpiece with a large treatment spot area of 15mm x 15mm (225mm²), significantly increasing treatment speed and coverage. A stand-alone emergency stop button is provided on the main chassis and a safety interlock is integrated with the handpiece to ensure immediate system shut-down if needed.

Parameter	**Specification**
Laser Type / Wavelength	Diode Laser / 755nm, 808nm, 1064nm

	(selectable)
Peak Power	Up to 1200W
Fluence (Energy Density)	5 - 50 J/cm²
Pulse Width	10 - 400 ms
Repetition Rate	1 - 10 Hz
Spot Size & Shape	15mm x 15mm (Square), 225mm²
Cooling System	TEC + Sapphire Contact (-5°C to +5°C) + Water + Wind
Display Interface	10.4-inch High-Definition Capacitive Touchscreen
Power Supply	100 - 240 VAC, 50/60 Hz, 1200W
Dimensions (W x D x H)	450mm x 520mm x 1050mm
Weight	Approx. 35 kg (77 lbs)

CLINICAL PROTOCOLS

For optimal clinical outcomes, it is recommended to follow a structured treatment protocol. A standard course of therapy typically consists of 3 to 5 sessions, spaced 3 to 4 weeks apart. Prior to treatment, the patient’ s skin is thoroughly cleansed and a topical anesthetic may be applied for enhanced comfort. The device is configured with energy settings appropriate for the

patient’ s skin type (based on the Fitzpatrick scale) and the specific indication. The practitioner performs a systematic scanning motion of the handpiece over the target area, ensuring slight overlap to achieve a uniform thermal effect. Post-treatment, a soothing balm or cold compress is applied. The integrated real-time temperature monitoring system provides continuous feedback to the practitioner, allowing for immediate parameter adjustments to maintain treatment safety and efficacy, ensuring the highest standard of patient care.