

Thermage RF Machine - Official Clinical Overview & Technical Datasheet

EXECUTIVE SUMMARY

This document presents a comprehensive technical and clinical overview of the Thermage RF Machine, a premier non-invasive aesthetic platform utilizing patented monopolar radiofrequency (RF) technology for skin tightening, contouring, and rejuvenation. Designed for deployment in high-end dermatology clinics and medical spas, the system delivers controlled volumetric heating to deep dermal tissues, stimulating neocollagenesis and achieving significant, long-lasting clinical outcomes. This datasheet details the device's clinical architecture, technical specifications, safety protocols, and operational parameters, establishing it as a benchmark asset in aesthetic medicine.



CLINICAL ARCHITECTURE & DESIGN

The Thermage RF Machine is engineered around a high-power 6.78 MHz RF generator, optimized for deep, uniform heating of the collagen-rich dermis. The system operates on a principle of capacitive coupling, delivering RF energy through a specialized treatment tip. A critical design feature is the integration of an advanced, multi-modal cooling system. Concurrent with RF energy delivery, the handpiece emits a controlled cryogen spray or utilizes a sapphire contact-cooling plate, providing robust epidermal protection . This permits the safe application of high fluences to the dermis (temperatures up to 65-75°C) while maintaining a comfortable and safe epidermal temperature. The proprietary Comfort Pulse Technology (CPT) interweaves pulsed RF delivery with bursts of cooling and gentle vibration, modulating the patient's neural response to discomfort and significantly enhancing the treatment experience . The system's modular architecture supports a diverse range of single-patient treatment tips, each calibrated with specific heating profiles to optimize outcomes for the face, eyes, and body.

KEY INDICATIONS & CAPABILITIES

The Thermage RF Machine is a versatile platform indicated for a wide spectrum of aesthetic applications. Its primary indication is non-invasive skin tightening and contouring for the treatment of wrinkles and rhytides. The device is

uniquely positioned in the market as the only non-invasive treatment cleared by the FDA for the improvement of periorbital wrinkles and laxity of the upper eyelids . Additional clinical applications include the lifting of facial and neck tissue, body contouring, and temporary improvement in the appearance of cellulite. The technology is effective across all skin types (Fitzpatrick I-VI) due to its non-light-based mechanism, making it a highly inclusive and versatile asset for any clinical practice. Clinical studies demonstrate that measurable results develop progressively over 2-6 months following a single treatment, with documented efficacy lasting up to 12-24 months .

TECHNICAL SPECIFICATIONS

The Thermage RF Machine represents a benchmark in RF technology, offering industry-leading power and precision for optimal clinical outcomes. The following specifications are for the flagship model, the Thermage CPT System.

Parameter	Specification
RF Generator Type	Mono-polar Capacitive Coupling with Vibration (Comfort Pulse Technology)
Frequency	6.78 MHz ± 0.1%
Maximum Output Power	400 W
Cooling System	Integrated Cryogen Spray (or Sapphire

	Contact Cooling) + Vibration
Treatment Tip Options	0.25 cm ² (Eyelid), 1.5 cm ² (Perioral), 3.0 cm ² (Face/Neck), 16.0 cm ² (Body), 3.0 cm ² (CL for Cellulite)
AC Input Rating	100-240 V, 50/60 Hz, 10 A
Electrical Safety	Class 1, Type BF, Certified to IEC 60601-1 & 60601-2-2
Certifications	FDA Cleared, CE Marked
Treatment Depth	Up to 4.3 mm deep

SAFETY, COMPLIANCE & STANDARDS

The Thermage RF Machine is manufactured to the highest standards of medical device safety and regulatory compliance. The system is rigorously certified to meet international standards, ensuring its suitability for professional healthcare environments. Its electrical safety rating is Class 1, Type BF Applied Parts, signifying a high degree of protection against electric shock and safe application to the patient. The device complies with the full suite of IEC 60601 standards, including IEC 60601-1 for general safety and IEC 60601-2-2 for the particular requirements of high-frequency surgical equipment . Furthermore, it is designed for electromagnetic compatibility (EMC) in professional healthcare

facilities, with guidelines to ensure consistent and accurate energy output free from interference. The platform holds essential international accreditations, including clearance from the U.S. Food and Drug Administration (FDA) and the CE mark for compliance in Europe .

CLINICAL PROTOCOLS & SAFETY MECHANISMS

A robust and integrated safety architecture underpins the clinical efficacy of the Thermage RF Machine. Each single-patient treatment tip is equipped with an electronic memory chip that prevents re-use, ensuring both treatment integrity and strict hygienic standards. The AccuREP™ technology, featured in the latest FLX generation, fine-tunes and optimizes the RF energy emitted for each pulse, automatically adjusting to the unique impedance of the skin and ensuring a consistent and predictable therapeutic effect . The system's internal safety algorithms allow for a high degree of energy control, enabling the practitioner to deliver high-energy treatments with confidence. The recommended clinical workflow involves a structured treatment pattern over the target area, with the practitioner continuously monitoring the patient's feedback to balance therapeutic efficacy with patient comfort. The built-in cooling and vibration mechanisms are not merely comfort features; they are integral to the safety system, preventing epidermal overheating and enabling the safe delivery of deep-dermal volumetric heating.

