

# MPT HIFU (Micro-Pulsed Technology) Aesthetic System Specifications & Clinical Whitepaper

## CLINICAL ARCHITECTURE & PERFORMANCE REFERENCE MANUAL: MPT HIFU (MICRO-PULSED TECHNOLOGY) SYSTEM

### EXECUTIVE SUMMARY

The MPT HIFU (Micro-Pulsed Technology) platform represents a paradigm shift in non-invasive dermatological rejuvenation and body contouring. By integrating advanced High-Intensity Focused Ultrasound (HIFU) with a proprietary Micro-Pulsed delivery algorithm, this system delivers controlled, micro-thermal coagulation zones (MTCZs) at precise depths within the dermis and superficial muscular aponeurotic system (SMAS). This synergistic architecture ensures superior lifting, tightening, and textural improvement with a significantly enhanced patient safety and comfort profile compared to conventional continuous-wave HIFU devices. Designed for the modern medical aesthetics practice, the MPT HIFU machine offers a turnkey solution for clinics seeking to expand their treatment portfolio with a clinically validated, high-ROI asset.



## CLINICAL ARCHITECTURE & DESIGN PHILOSOPHY

The fundamental innovation of the MPT HIFU system lies in its Micro-Pulsed Technology. Unlike traditional HIFU that delivers a continuous stream of ultrasound energy, the MPT engine generates rapid, ultra-short bursts of high-intensity acoustic energy. This pulsed delivery significantly reduces the overall thermal load on the epidermis and superficial tissues while concentrating peak power at the focal point. The system's core comprises a high-frequency transducer cartridge, a precision motion control unit, and a real-time impedance monitoring module. The transducer focuses acoustic energy to a fixed focal point, creating high temperatures (60-70°C) at the target depth to initiate the neo-collagenesis and wound-healing cascade. The integrated motion control ensures uniform and consistent treatment line placement, mitigating the risk of energy stacking or skip areas. The design

prioritizes clinical efficacy and operational longevity, with each component engineered for robustness in a high-volume clinical environment.

## KEY INDICATIONS & CAPABILITIES

The MPT HIFU platform is clinically indicated for a broad spectrum of aesthetic applications. It is extensively utilized for non-surgical facial lifting and tightening, specifically targeting the brow, submental (chin), and jawline regions. The device's energy delivery versatility allows for effective treatment of the décolletage and neck, reducing the appearance of fine lines and wrinkles. Furthermore, its body contouring capabilities enable the safe and effective reduction of localized adiposity in areas such as the abdomen, flanks, and thighs. The system supports a range of transducer depths (typically 1.5mm, 3.0mm, and 4.5mm), enabling clinicians to tailor treatments based on individual patient anatomy and specific indications, ranging from superficial textural refinement to deep SMAS lifting. This customizability ensures predictable outcomes across diverse skin types and patient ages.

## COMPLIANCE & CLINICAL STANDARDS

The MPT HIFU system is engineered and manufactured in accordance with the highest international standards for medical device safety and performance. It

conforms to the rigorous requirements of the Medical Device Regulation (MDR) 2017/745 for CE marking, certifying its safety and efficacy for clinical use within the European Economic Area. The device is designed to meet the essential requirements of the U.S. Food and Drug Administration (FDA) for over-the-counter and prescription use. Internally, the platform undergoes exhaustive quality assurance protocols aligned with ISO 13485:2016 for Medical Devices – Quality Management Systems. These certifications underscore the OEM's commitment to delivering a reliable, safe, and clinically effective system that meets the stringent demands of global regulatory bodies and healthcare professionals.

#### TECHNICAL SPECIFICATIONS

<b>Parameter</b>	<b>Specification</b>
Ultrasound Transducer Frequency	4.0 MHz (Facial) / 2.0 MHz (Body)
Treatment Depths (Selectable)	1.5mm / 3.0mm / 4.5mm (SMAS)
Focal Point Temperature	60°C - 70°C
Pulse Delivery Mode	Micro-Pulsed (MPT) Algorithm
Spot Size (Focal Zone)	Approx. 0.8 x 12.0 mm (Linear Focus)
Pulse Duration	Micro-second range (Proprietary)
Cooling System	Integrated Liquid-Cooled Transducer + Air Cooling

User Interface	10.4-inch Capacitive Touchscreen with Smart Presets
Input Voltage / Power	AC 100-240V, 50/60Hz, 250W Max
Unit Dimensions (W x D x H)	420 x 380 x 290 mm
Unit Weight	Approx. 12.5 kg (27.5 lbs)
Safety Interlocks	Skin Contact Sensor, Temperature Monitoring, Emergency Stop

#### CLINICAL PROTOCOLS & OPERATIONAL WORKFLOW

To optimize clinical outcomes, the MPT HIFU system is supported by a comprehensive suite of pre-programmed treatment protocols accessible via the intuitive user interface. A standard facial lifting protocol begins with a thorough patient consultation and skin cleansing. Topical anesthetic may be applied 30-45 minutes prior to the procedure to maximize patient comfort. The clinician selects the appropriate transducer depth (e.g., 3.0mm for mid-dermis, 4.5mm for SMAS) and configures the system's energy settings, which adjust the number of lines and pulse parameters per treatment area. During the procedure, the handpiece is placed firmly against the skin, and a vacuum-assisted coupling ensures optimal acoustic energy transfer. The MPT system features a real-time skin contact sensor and an automatic energy stop mechanism to ensure safety.

A typical full-face treatment requires the delivery of 400-600 treatment lines. Post-procedure, patients can resume normal activities immediately, with mild redness and swelling resolving within a few hours. Visible results develop progressively over 2-3 months, driven by the ongoing remodeling of collagen and elastin fibers. The system includes a 'Treatment History' log to track patient progress and settings for future sessions, ensuring consistent and repeatable outcomes.

