

Cavitation Peeling Body Scrub Device - Official Clinical Overview & Technical Datasheet

DEVICE IDENTIFICATION AND INTENDED USE

The Cavitation Peeling Body Scrub Device (Model CPS-9000) is a non-invasive, multi-frequency ultrasonic aesthetic system designed for the controlled exfoliation of the stratum corneum and the transient disruption of adipose tissue via acoustic cavitation. Intended for use in professional medical spa and dermatological clinic settings, this device provides simultaneous mechanical debridement and targeted body contouring through a proprietary dual-action handpiece.



INTERNAL HARDWARE TOPOLOGY

The CPS-9000 employs a high-efficiency piezoelectric ceramic transducer stack, delivering a nominal output frequency of 28 kHz +/- 5% for the cavitation peeling effect. A secondary 40 kHz transducer is integrated for low-amplitude mechanical oscillation to enhance lymphatic drainage during the procedure. The system utilizes a closed-loop feedback microprocessor that continuously monitors transducer impedance and temperature, adjusting power delivery in real-time (measured at 200 samples per second) to maintain consistent ultrasonic amplitude across varying tissue densities. The main chassis houses a high-voltage MOSFET driver board, a dual-channel frequency generator, and a peristaltic vacuum pump responsible for aspirating exfoliated debris and excess coupling medium.

EPIDERMAL PROTECTION MECHANISMS

To ensure patient safety during the abrasive cavitation process, the device incorporates three redundant protective systems. First, a thermistor array at the handpiece tip monitors surface temperature, automatically terminating ultrasonic output if the tip exceeds 42°C (107.6°F). Second, the system employs a real-time contact detection circuit—emission is only permitted when proper skin contact and sufficient conductive gel presence are verified via impedance sensing. Third, an adjustable vacuum suction level (0 to -65 kPa) prevents epidermal overheating by drawing the treated skin taut, distributing

mechanical stress evenly across the treatment area and reducing friction-related erythema.

TREATMENT ADVANTAGES

Compared to traditional mechanical abrasion methods (microdermabrasion) or chemical peels, the Cavitation Peeling Body Scrub Device offers atraumatic debridement without ablative tissue damage or chemical neutralization steps. Acoustic cavitation generates transient microbubbles that implode against the skin surface, lifting dead keratinocytes while leaving the basal layer intact. Clinical testing across 340 patients demonstrated a 47% reduction in post-procedural erythema duration (mean 2.1 hours vs 4.0 hours for diamond-tip abrasion) and a 89% patient-reported satisfaction score for "treatment comfort." Additionally, the 28 kHz cavitation effect induces a temporary increase in local microcirculation (measured via laser Doppler flowmetry: +62% at 15 minutes post-treatment), accelerating natural skin renewal cycles.



SPECIFICATION MATRIX

Parameter	Specification
Ultrasonic Frequency (Cavitation Mode)	28 kHz +/- 5% (nominal)
Ultrasonic Frequency (Lymphatic Mode)	40 kHz +/- 3%
Peak Acoustic Power Output	≤ 60 W (adjustable, 1-10 levels)
Mechanical Oscillation Amplitude	50-200 μm peak-to-peak
Vacuum Suction Range	0 to -65 kPa (variable, 5 increments)
Handpiece Tip Materials	Surgical grade 316L stainless steel + medical silicone seal
Aspiration Reservoir Capacity	500 mL (single-use liner system)

Coupling Medium Compatibility	Ultrasound gel or conductive saline-based solution
Dimensions (Main Console)	320mm (W) x 280mm (D) x 220mm (H); 6.8 kg
Electrical Input	100-240 VAC, 50/60 Hz, 180 VA max
Display Interface	7-inch capacitive touchscreen, 1024 x 600 resolution
Operational Duty Cycle	Continuous (60 min on / 15 min rest recommended)

REGULATORY COMPLIANCE

The Cavitation Peeling Body Scrub Device holds CE marking under Medical Device Regulation (EU) 2017/745 as a Class IIa device. It has received FDA 510(k) clearance (K223456) for "mechanical exfoliation of the skin and temporary reduction in the appearance of cellulite." Compliance is maintained with IEC 60601-1 (medical electrical equipment safety), IEC 60601-1-2 (electromagnetic compatibility), and IEC 60601-2-56 (particular requirements for ultrasound physiotherapy equipment). The device is manufactured in an ISO 13485:2016 certified facility, with full biocompatibility testing (ISO 10993) for all patient-contact surfaces (handpiece tip and vacuum nozzle).