

# Cryolipolysis Fat Freezing Machine - Official Clinical Overview & Technical Datasheet

## DEVICE IDENTIFICATION

The Cryolipolysis Fat Freezing Machine (Model Series: CL-3000) is a non-invasive controlled cooling system designed for the reduction of localized subcutaneous adipose tissue via selective cryolipolysis. The device operates without laser, suction, or vacuum-assisted mechanical trauma, utilizing patented flat-plate or curved applicator technology to induce adipocyte apoptosis while preserving overlying dermal integrity.



## INTERNAL HARDWARE TOPOLOGY

The system is architected around a dual-circuit thermoelectric cooling engine

comprising:

- Four TEC1-12706 Peltier modules (parallel-series configurable)
- Closed-loop liquid coolant circulation with 250 mL reservoir capacity
- Brushless DC circulation pump (flow rate: 2.5 L/min)
- Dual NTC thermistor feedback sensors (accuracy:  $\pm 0.3^{\circ}\text{C}$ )
- Isolated power supply (Input: 110-240V AC, 50/60 Hz; Output: 24V DC, 15A)
- 10.1-inch capacitive touchscreen panel with embedded treatment logic
- Silent operation:  $< 55$  dB at maximum cooling load

#### EPIDERMAL PROTECTION MECHANISMS

The device incorporates a three-layer safety cascade:

1. Real-time cutaneous temperature monitoring with automatic shutdown at  $+4^{\circ}\text{C}$  deviation from setpoint.
2. Gel membrane interlayer with thermal conductivity optimized for  $-11^{\circ}\text{C}$  to  $+5^{\circ}\text{C}$  operating range.
3. Integrated freeze-burn prevention algorithm that modulates Peltier duty cycle when skin-modeled thermal load exceeds safety threshold.

#### TREATMENT ADVANTAGES

- Zero-downtime procedure; patients return to normal activity immediately.

- No anesthesia, incisions, or compression garments required.
- Clinically demonstrated 20-27% subcutaneous fat layer reduction per treated site after 60-90 days (based on caliper and ultrasound validation).
- Adjustable applicator sizes to accommodate abdomen, flanks, inner/outer thighs, submental area, and bra fat.

#### SPECIFICATION MATRIX

Parameter	Specification
Cooling Technology	Thermoelectric Peltier + Liquid circulation
Applicator Temperature Range	-11 °C to +5 °C (adjustable in 0.5 °C increments)
Treatment Duration	35 to 60 minutes per zone (preset protocols)
Applicator Sizes	Small (2"x3"), Medium (4"x5"), Large (5"x7"), Curved (for thighs)
Display	10.1-inch HD capacitive touchscreen
Power Consumption	360W (max cooling); 15W (standby)
Dimensions (Main Unit)	18.5" W x 16" D x 20" H (47 x 41 x 51 cm)
Weight	18 kg (39.7 lbs) including applicators

## REGULATORY COMPLIANCE

The Cryolipolysis Fat Freezing Machine complies with:

- CE Medical Device Regulation (EU) 2017/745 - Class IIa
- FDA 510(k) substantial equivalence (KXXXXXX) for non-invasive fat reduction
- IEC 60601-1 (Medical Electrical Equipment Safety)
- IEC 60601-1-2 (Electromagnetic Compatibility)
- RoHS Directive 2011/65/EU
- ISO 13485:2016 certified manufacturing facility

