Precision Servo Driven Automatic Hot Press 4 Ton Electric Cleanroom Oil Free 150X150Mm Ce

Item Number: XP69

Introduction

Precision automatic hot press with servo electric drive, 4-ton force, ±2kg accuracy, oil-free design ideal for cleanroom environments. 150x150mm heated platens, independent dual-zone temperature control up to 300°C. CE certified, ideal for semiconductor, battery research, and material science labs.

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Application	Description	Key Benefit
Semiconductor Packaging	Die attach, underfill curing, and flip-chip bonding in cleanrooms where particle-free conditions are critical. The 150×150 mm platens accommodate multiple chip carriers, and programmable force profiles ensure consistent bondline thickness across the entire batch.	Oil-free operation prevents contamination; precise force and temperature control ensure bond integrity and high yield.
Battery Research	Electrode calendering, solid-state electrolyte pressing, and pouch cell sealing for lithium-ion and next-gen batteries. The ability to apply uniform pressure with high flatness is crucial for achieving target electrode porosity and density.	Uniform pressure distribution improves electrode homogeneity; dual-zone heating prevents thermal damage to temperature-sensitive electrolytes.
Materials Science	Hot embossing of polymers, composite lamination, and thin-film fabrication for advanced materials development. Researchers can optimize temperature and pressure profiles to study material behavior under controlled conditions.	Programmable ramp/soak prevents overheating; compact size fits in laminar flow hoods or fume hoods for hazardous material experiments.
Microfluidics & MEMS	Thermal bonding of PDMS to glass, thermoplastic chip bonding, and nanoimprint lithography. These processes demand extreme force accuracy to avoid deforming microchannels or damaging delicate nanostructures.	±2 kg accuracy safeguards high-aspect-ratio features; oil-free design avoids channel contamination that could alter fluidic behavior.
Spectroscopy Sample Prep	Production of KBr pellets for FTIR, pressed pellets for XRF, and fusion beads. Consistent application of both pressure and heat ensures a uniform sample matrix, reducing spectral scatter and improving analytical reproducibility.	Programmable press and heat cycles eliminate operator variability; compact size fits near spectrometer workstations.
Advanced Ceramics	Pre-pressing of ceramic green bodies and binder burn-out with controlled heating profiles. The ramp/soak function allows slow binder removal before final densification, minimizing internal stresses.	Ramping temperature reduces cracking and warping; water cooling accelerates cool-down between batches, increasing throughput.
Thin-Film & Coating Development	Hot lamination of photovoltaic layers, flexible electronics encapsulation, and barrier film attachment. Accurate force prevents coating damage while ensuring thorough bonding across the entire substrate.	Precise pressure and parallelism avoid wrinkles and uneven laminate; oil-free atmosphere preserves film cleanliness and adhesion.
Biomedical Device Assembly	Precision bonding of biocompatible polymers for microfluidic diagnostic cartridges, catheter fabrication, and implantable sensors. The oil-free environment eliminates toxins that could leach into medical components.	Tight force and temperature control ensure clean, strong bonds without material degradation; validated for medical prototyping labs.

Parameter	Specification
Model	XP69
Pressure Range	0 – 4 Ton (approx. 0 – 40 kN)
Pressure Accuracy	± 2 kg
Drive System	Servo motor driven (100% electric, oil-free)
Platen Size	150 × 150 mm
Platen Distance	50 mm

Parameter	Specification
Working Temperature	0 – 300°C
Temperature Control	Dual platen independent PID with programmable ramp/soak
Heating Power	1500 W (1.5 kW)
Cooling Method	Circulating water cooling (requires external chiller/water supply)
Controller	7-inch color touchscreen with real-time curve display
Power Supply	Single-phase AC 230V, 50 Hz
Compliance	CE certified; HS Code 8474802000