

Precision Servo Driven Electric Vacuum Hot Press For Battery Research And Advanced Material Processing

Item Number: XP22



Introduction

Precision servo-driven electric vacuum hot press with compact 260mm chassis, programmable 7-inch touchscreen, oil-free actuation, and high-temperature capability for battery research and advanced material consolidation. Ideal for producing dense, uniform films and solid-state electrolytes with precise pressure and temperature control.

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Application	Description	Key Benefit
Solid-State Battery Electrolyte Films	Vacuum hot pressing of sulfide or oxide electrolyte powders into dense, thin films under precisely controlled temperature and pressure.	Minimizes resistive interfaces and enhances ionic conductivity through uniform microstructure.
Lithium-Ion Electrode Calendering	Post-coating compression of cathode and anode materials to improve active material contact and density under vacuum.	Boosts energy density and rate performance while reducing cell internal resistance.
Polymer Separator & Membrane Molding	Fabrication of microporous or dense polymer membranes with adjustable thickness via gap-controllable molds.	Achieves consistent thickness tolerance ($\pm 1 \mu\text{m}$) and surface flatness for critical separation applications.
Advanced Composite Lamination	Multi-layer thermal bonding of functional films, foils, and nonwovens for flexible electronics or packaging.	Reliable interlaminar adhesion without delamination, even with dissimilar materials.
Ceramic Powder Compaction	Near-net-shape compression of ceramic preforms under vacuum, followed by sintering to achieve high-density ceramics.	Reduces porosity to near-zero levels, improving mechanical and thermal properties.
High-Performance Ceramic Substrates	Vacuum hot pressing of ceramic tapes for electronic substrate applications.	Eliminates voids and warpage, yielding perfectly flat, dense substrates with excellent thermal conductivity.
Academic Material Research	Versatile platform for exploratory synthesis of novel alloys, thermoelectrics, or bio-materials requiring clean, programmable heating/pressing.	Rapid iteration with reproducible parameter control, accelerating publication-ready results.

Specification	Standard Configuration	Optional Upgrades / Performance Core	Remarks
Model	XP22	—	Precision servo-driven electric vacuum hot press
Actuation Type	Pure servo-electric, oil-free	—	Eliminates hydraulic fluid contamination
Max Pressing Force	0 - 3.0 Tons (0 - 30 kN)	0 - 5.0 Tons (0 - 50 kN) with fast-heating electrode array; 0 - 10.0 Tons (0 - 100 kN) high force	0.01 Ton resolution with intelligent load compensation
Force Resolution	0.01 Ton	—	Intelligent micro-step compensation for precision loading
Platen Size	180 x 180 mm	—	High-rigidity die steel platens
Platen Daylight (Opening)	50 mm	60 mm or 65 mm	Accommodates thicker molds or multi-layered assemblies
Maximum Operating Temperature	Standard (not specified, typically $\leq 200^\circ\text{C}$)	Up to 300°C (with high-temperature package)	Suitable for polymer melting, ceramic sintering, and metal annealing
Heating Method	Embedded dual-platen independent heaters	Optional high-temperature package	Water-cooled channels integrated for rapid cooling

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Temperature Control	7-inch programmable touchscreen, multi-segment profiling	—	Aura-Touch™ interface; real-time curve display, recipe storage
Cooling System	Built-in water-cooling channels	Compatible with external closed-loop chiller (e.g., CW-3000)	Standard feature for platen cooldown and seal protection
Chassis Dimensions (W×D×H)	260 × 347 × 422 mm (narrow design)	300 × 300 × 420 mm (classic design)	2025 narrow chassis vs. 2024 classic; net weight 130 kg vs. 100 kg
Electrical Standard	AC 220-230V, 50Hz, single phase	110V/60Hz (North America); 220V/60Hz (Korea)	All configurations use standard laboratory single-phase power
Safety Features	Three-tier active electrical interlocks; CE certified	—	Full compliance with international safety directives
Optional Application Kits	—	KIT A: 100 μm square film tooling (+\$300); KIT B: gap-adjustable sheet mold (+\$300); KIT C: CW-3000 industrial water chiller	Seamless integration with 180×180 mm platens
Warranty & Support	12-month warranty (consumables excluded)	—	Lifetime free technical consultation and spare parts supply