

Automatic 10 Ton 300°C Large Opening Water Cooled Laboratory Hot Press

Item Number: XP90



Introduction

Discover our automatic laboratory hot press with 10-ton force, 300°C temperature, 300mm large opening, and integrated water cooling. Ideal for polymer composites, battery research, and more. Request a quote today.

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Application	Description	Key Benefit
Polymer Film Fabrication	Pressing polymer pellets, powders, or pre-pregs between heated platens to form uniform thin films for subsequent mechanical testing, optical spectroscopy, or packaging research. The programmable cooling rate is critical for controlling film morphology and thickness with micron-scale repeatability.	Consistent film properties and rapid process development
Composite Laminate Molding	Consolidating multiple layers of prepreg or dry fiber with epoxy under controlled heat and pressure to form advanced composites. The large opening accommodates thick layups, and uniform force prevents uneven resin flow while ensuring interlayer adhesion without voids.	High-quality void-free laminates
Battery Electrode Calendering	Densifying electrode coatings on metal foils for lithium-ion, sodium-ion, or solid-state battery cells. Dual heating and precise pressure densify electrode layers while avoiding cracking, directly improving energy density and cycle life.	Enhanced battery performance and electrode integrity
Hot Embossing Lithography	Replicating micro- and nano-scale patterns from a master mold into thermoplastic substrates for microfluidics, optics, or surface engineering. Multi-stage temperature and pressure profiles enable high-fidelity pattern transfer over large areas with minimal residual stress.	High-resolution pattern replication
Pharmaceutical Tablet Compression	Compressing powder blends into tablets with exact weight, thickness, and hardness for R&D formulation development. Automated dwell and decompression cycles produce tablets with consistent dissolution profiles, meeting pharmacopeial standards for content uniformity.	Formulation consistency and regulatory compliance
XRF Sample Pellet Preparation	Producing homogeneous pressed pellets from powdered samples for X-ray fluorescence analysis, with or without a binder. The 10-ton capability and programmable hold time produce high-density pellets that minimize analytical bias arising from sample heterogeneity.	Improved analytical accuracy
Rubber Vulcanization	Curing rubber compounds in sheet or block form under heat and pressure for optimizing mechanical properties such as tensile strength and elasticity. Precise temperature control and large opening accommodate various mold sizes, while water cooling shortens post-cure handling time.	Tailored rubber properties with fast throughput
Ceramic Powder Compaction	Dry pressing of ceramic powders into green bodies before sintering, including advanced ceramics and electroceramics for electronics. Uniform pressure distribution and programmable dwell reduce density gradients, leading to defect-free sintered components with enhanced structural integrity.	Defect reduction and higher sintered densities

Specification	Detail	Remarks
Model	XP90	---
Max Pressure	10 Tons (0-10 T adjustable)	Automatic hydraulic pressurization
Pressure Control	Programmable multi-stage pressure control with hold	Digital setpoint with 0.1T resolution
Working Temperature	0-300 °C	Dual independent heating zones
Heating Control	Programmable ramp/soak with PID	Independent dual-platen control
Heating Power	2100 W total (1050 W per platen)	---

Specification	Detail	Remarks
Platen Size	200 × 200 mm	---
Opening Height	300 mm	Accommodates tall molds and multi-layer assemblies
Cooling Method	Circulating water cooling	Requires external chiller; quick-connect fittings included
Power Supply	AC 110 V, 60 Hz or AC 220 V, 50/60 Hz	110 V version draws higher current; consult for electrical requirements
Dimensions (L×W×H)	500 × 410 × 900 mm	---
Net Weight	300 kg	Install on a sturdy bench or dedicated stand