

15 Ton Manual Hot Press For Battery Research And Advanced Materials

Item Number: XP15



Introduction

15-ton manual hot press with precise temperature control up to 400°C and 180x180 mm isothermal platens for battery research, polymer processing, and ceramic densification. Available in compact 50 mm or high-clearance 381 mm daylight configurations. Request a quote today.

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Application	Description	Key Benefit
Solid-State Battery Electrolyte Pressing	Used for consolidating sulfide or oxide electrolyte powders into dense ceramic pellets. The press applies uniform heat and pressure, essential for achieving high ionic conductivity without grain boundary resistance.	Produces mechanically robust, highly conductive electrolyte layers crucial for next-generation solid-state batteries.
Polymer Film Formation and Lamination	Hot pressing thermoplastic polymers, composite membranes, or multilayer films for fuel cells, filtration, or packaging research. The precise temperature and pressure control ensures uniform thickness and surface quality.	Delivers high-quality, defect-free films with tailored thickness and enhanced interfacial adhesion.
Ceramic Densification and Sintering	Employed for hot pressing advanced ceramics such as LLZO, LATP, or alumina to achieve near-theoretical density. Simultaneous heat and pressure accelerate sintering kinetics.	Eliminates porosity, increasing mechanical strength and ionic conductivity for functional ceramics.
Glovebox-Integrated Air-Sensitive Material Processing	Platform S fits inside argon or nitrogen gloveboxes, allowing pressing of lithium metal anodes, reactive sulfides, or other oxygen-sensitive compounds without contamination.	Maintains ultra-pure atmosphere, preventing oxidation and ensuring sample integrity.
Multi-Layer Die Stacking for Cell Assemblies	Suitable for pressing stacked layers of electrodes, separators, and current collectors in battery or fuel cell research. The extended daylight of Platform H accommodates multiple layers.	Achieves uniform pressure distribution across complex layered structures, essential for device performance.
High-Temperature Material Characterization	Testing thermal behavior and compression properties of novel composites, polymers, or hybrid materials up to 400°C. The press can simulate processing conditions.	Enables rapid screening of material candidates under realistic manufacturing conditions.
Powder Compaction for Sputtering Targets	Compacting metal or ceramic powders into dense discs for subsequent machining into sputtering targets or pellets. High force ensures green strength.	Produces homogeneous, high-density compacts with minimal die wear.
Hot Embossing for Microfluidic Devices	Temperature-assisted embossing of microstructures into polymer substrates for lab-on-a-chip or biomedical devices. Precise pressure and temperature control replicate fine features.	Achieves high-fidelity pattern transfer with excellent surface quality and reproducibility.

Parameter	Specification
Model Identifier	XP15
Force Capacity	0-15 Metric Tons (0-150 kN)
Fluid Actuation	Manual Hydraulic Pump
Platen Dimensions	180 × 180 mm Isothermal Platens
Control Interface	7-inch PID Touchscreen (Temperature & Pressure)
Power Supply	AC 220-240V, 50Hz Single-Phase
Certification	CE Certified
Cooling Method	Built-in copper cooling channels with quick-connect water ports

Parameter	Platform S (Compact)	Platform H (Extended Gantry)
Max Daylight	50 mm	381 mm
Piston Stroke	≤ 50 mm	130 mm
Temperature Range	Ambient-300°C (1000W) or -400°C (2800W)	Ambient-350°C (2000W)
Rated Heating Power	1000W (300°C) / 2800W (400°C)	2000W (350°C)
Dimensions (WxDxH)	300 × 300 × 420 mm	≈350 × 350 × 750 mm
Net Weight	100-130 kg	≈150 kg
Cooling Integration	Standard across platforms (quick-connect)	Same as Platform S