

Automatic Heated Laboratory Press 200 Ton Ultra High Force 500°C Extreme Temperature 300×300Mm Platens Research Grade

Item Number: XP83

Introduction



Discover our precision automatic heated laboratory press delivering 200-ton force and 500°C temperature with 300×300mm platens for advanced ceramics, powder metallurgy, and composite research. Closed-loop pressure control and PID heating ensure consistent, high-performance compaction results.

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Application	Description	Key Benefit
Advanced Ceramics Sintering	Densification of ceramic powders like alumina, zirconia, or silicon carbide under simultaneous high pressure and temperature to achieve near-theoretical density and superior mechanical properties.	Achieves full density with minimal grain growth, enhancing component strength and wear resistance.
Powder Metallurgy Compaction	Hot pressing of metal powders into near-net-shape preforms or finished parts, reducing porosity and improving material integrity for structural and magnetic applications.	Produces high-density parts with uniform microstructure and enhanced fatigue life.
Carbon Fiber Composite Hot Pressing	Curing and consolidation of carbon fiber prepreps with thermoplastic or thermoset matrices, applying precise pressure and heat cycles to achieve void-free laminates.	Yields lightweight, high-strength panels with optimal fiber-matrix bonding for aerospace and automotive R&D.
Superhard Material Processing	Synthesis and sintering of polycrystalline diamond (PCD) or cubic boron nitride (cBN) blanks under extreme conditions for cutting tool and wear part manufacturing.	Enables production of ultra-hard materials with consistent quality and high yield.
Thermoplastic Composite Molding	Compression molding of high-performance thermoplastics like PEEK or PEI with continuous fibers, using controlled heating and cooling profiles for optimal crystallinity.	Creates complex, high-toughness components with short cycle times and excellent dimensional stability.
Battery Research & Development	Calendering and lamination of battery electrodes and solid-state electrolyte films under controlled pressure and temperature to improve interfacial contact and ionic conductivity.	Enhances energy density and cycle life of next-generation batteries.
Material Testing Specimen Preparation	Fabrication of standardized test coupons from composite or metallic powders for mechanical, thermal, or electrical characterization, ensuring repeatable specimen geometry and density.	Guarantees accurate and comparable material property data for research publications.
Polymer Film Production	Hot pressing of polymer granules into thin films or sheets for optical, barrier, or dielectric applications, with precise thickness control and surface finish.	Produces uniform, defect-free films with tailored properties for advanced material studies.

Parameter	Specification
Model	XP83
Max Force	200 Tons (2000 KN), adjustable from 0.5 to 200T auto closed-loop
Pressure Sensor Accuracy	0.2% F.S.
Platen Size	300×300 mm (11.8×11.8 inches), premium hot-work tool steel
Max Daylight	50 mm, suited for thin high-pressure parts and short molds
Temperature Range	0 - 500°C, ideal for high-temperature polymers, ceramics, and composites
Temperature Control	Intelligent PID multi-segment programmable ramp control, dual independent heating zones with slope setting

Parameter	Specification
Total Heating Power	3,500 W (3.5 kW), optimally calculated for thermal efficiency
Controller	7-inch full-color LCD touchscreen, real-time monitoring of pressure, temperature, and time curves
Power Supply	Single-phase AC 220V / 50Hz (customizable), maximum current ~15.9A
Overall Dimensions (WxDxH)	650x500x850 mm, rigid compact frame
Net Weight	550 kg, integrated cast steel / thick plate frame
Cooling Method	Built-in water cooling channels in platens (external chiller or water line recommended)
Safety & Certifications	Standard physical safety guard, over-temp and over-pressure auto shut-off; CE certified