500°C Ultra-High Temperature Automatic Benchtop Hot Press 5 Ton 180X180Mm Platens

Item Number: XP66

Introduction

Explore the 500°C ultra-high temperature automatic benchtop hot press featuring 5-ton force, 180x180mm platens, and fully automatic hydraulic control with integrated water cooling. Perfect for polymer, composite, battery, and advanced material research, ensuring precise and consistent thermal processing results.

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Application	Description	Key Benefit
High-Performance Polymer Molding	Processing of polyimide (PI), polyether ether ketone (PEEK), polytetrafluoroethylene (PTFE), and other high-temp thermoplastics and fluoropolymers. These materials require sustained temperatures up to 500°C for molding, curing, or film formation.	Achieves uniform material flow and crystallization, minimizing internal stresses and dimensional inaccuracies.
Advanced Ceramic & Glass Sintering	Low-temperature bonding, pre-sintering, and heat treatment of glass powders, microcrystalline glass, and electronic ceramics under controlled pressure.	Enables precise densification and microstructure development for prototyping advanced inorganic materials.
Solid-State Battery Interface Engineering	Thermocompression bonding of cathode/solid electrolyte/anode layers in all-solid-state batteries, requiring high temperature and uniform pressure to reduce interfacial resistance.	Improves ionic conductivity and mechanical integrity of the cell, accelerating solid-state battery R&D.
Multilayer Composite Lamination	High-temperature curing and bonding of advanced prepregs, metal-polymer laminates, and structural composites for aerospace or electronics.	Produces void-free, highly uniform laminates with superior mechanical and thermal properties.
Polymer Film & Membrane Production	Calendering and compression of high-temperature polymer films for filtration, energy, and sensor applications, where precise thickness and porosity control are essential.	Yields films with tight tolerance and consistent quality, suitable for scalable research.
Electronic Packaging & Underfill	High-temperature curing of adhesives, encapsulants, and underfill materials for semiconductor and PCB assembly.	Ensures void-free bonding and consistent thermal cycling resistance.
Fiber-Reinforced Composite R&D	Fabrication of carbon fiber, glass fiber, or aramid reinforced thermoplastic or thermoset composite coupons for mechanical characterization.	Enables rapid prototyping and testing of layup configurations under controlled pressure and heat.
General Materials Research & Sample Preparation	Versatile platform for academic and industrial labs to prepare samples for mechanical testing, spectroscopy, or microscopy. Programmable cycles ensure standardized preparation.	Streamlines workflow and enhances reproducibility, increasing lab productivity.

Parameter	Specification	Remarks
Model	XP66	Formerly known as PCH-5T1818A / PCAH-5T1818A
Operation	Fully Automatic Hydraulic Control	One-button mold closing, pressurizing, and programmed heating
Max Force	0 - 5 Tons (0 - 50 kN)	Precisely adjustable pressure
Working Temperature	0 - 500°C (Max 500°C)	Ultra-high temperature configuration for high-temp material R&D
Heating Power	1500 W	Smooth heating, excellent insulation
Platen Size	180 × 180 mm	Compact dual-zone heating plates
Max Surface Pressure	~15.4 Bar (1.54 MPa)	Suitable for precision lamination and polymer film curing

Parameter	Specification	Remarks
Cooling Method	Circulating Water Cooling	Must connect water chiller when working temperature exceeds 150°C
Power Supply	AC 220V / 50Hz (Single Phase)	Operating current approx. 6.8 A, plug-and-play
Setup Dimension (W×D×H)	290 × 290 × 420 mm	Benchtop vertical compact structure
Net Weight	90 kg	Gravity-concentrated design; two-person handling recommended