

Split Type Automatic Hot Press With Pid Temperature Pressure Control And Water Cooling 400X400Mm Lab Molding

Item Number: XP41



Introduction

Engineered for demanding lab environments, this split-type automatic hot press offers 20-ton force, 400x400mm heated platens, dual-zone PID temperature control up to 300°C, programmable pressure cycles, and integrated water cooling. Perfect for polymer molding, battery research, and advanced ceramics.

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Application	Description	Key Benefit
Polymer and Composite Molding	Compression molding of thermoplastics, thermosets, fiber-reinforced laminates, and nanocomposites. Ideal for fabricating ASTM test specimens or small prototype parts.	Uniform heating and pressure over the entire 400 × 400 mm area prevent warpage and voids, delivering parts with consistent mechanical properties.
Lithium-Ion Battery Electrode Preparation	Calendering of cathode/anode films and hot pressing of solid-state electrolyte pellets. Supports research on next-generation Li-ion, Li-S, and solid-state batteries.	Fine pressure control down to 0.5 T and precise temperature ramps improve electrode density, adhesion to current collectors, and ionic conductivity.
Ceramic and Powder Metallurgy Pressing	Uniaxial pressing of oxide ceramics, carbides, nitrides, and metal powders into green bodies prior to sintering. Also suitable for ceramic membrane preparation.	Programmable dwell and auto-pressure compensation yield homogeneous density distribution, reducing cracking and distortion after sintering.
Rubber and Plastic Vulcanization	Curing natural rubber, silicone, EPDM, and fluoroelastomers. Multi-step recipes can incorporate pre-heat, cure, and post-cure stages.	Independent temperature control of both platens ensures symmetrical curing, while auto-hold pressure minimizes flash and porosity.
Thin Film and Laminating Applications	Hot lamination of protection films, photovoltaic encapsulants, and flexible electronics. Pressure-sensitive adhesives can be activated without bubbles.	Low-force precision (from 0.5 T) and even heat distribution prevent delamination and allow processing of temperature-sensitive substrates.
Pharmaceutical Tablet Compression Research	R&D of matrix tablets, bilayer tablets, and orodispersible films. Compacts can be made at exact pressures to study drug release profiles.	Data logging and real-time force-time curves support QbD (Quality by Design) initiatives and scale-up studies.
Adhesive and Sealant Bonding	Heat-activated bonding of metals, composites, or glass using epoxy films, hot-melt adhesives, or ceramic pastes.	Programmable cycle ensures consistent bondline thickness and full cure, even with large-area substrates.
Educational and Materials Science Training	Hands-on instruction in polymer processing, powder compaction, and thermal analysis. Students learn principles of compression molding and PID control.	Intuitive touchscreen, safety interlocks, and robust design make it suitable for shared academic workspaces.

Parameter	Specification
Product Model	XP41
Equipment Type	Split-Type Automatic Hot Press (control cabinet separated)
Maximum Working Pressure	0 – 20 tons (stepless adjustable, PID auto-hold)
Platen Size	400 × 400 mm
Daylight (Opening)	180 mm
Piston Stroke	60 mm
Operating Temperature Range	Room temperature to 300 °C

Parameter	Specification
Heating Power	7200 W total (2 × 3600 W, upper and lower zones)
Temperature & Pressure Controller	7-inch color touchscreen, PID multi-segment programmable
Platen Cooling Method	Integrated water cooling channels; external chiller recommended
Power Supply	AC 220 V / 50 Hz or AC 380 V / 50 Hz (factory-configurable upon order)
Dimensions (Press Unit, approx)	Consult factory (depends on configuration)
Net Weight (approx)	Consult factory (varies with options)