50 Ton Manual Hot Press With Dual-Zone Programmable Heating And Digital Pressure Sensor

Item Number: XP03

Introduction

This 50-ton manual hot press with digital control, dual-zone 500°C heating, and 0.2% pressure sensor accuracy provides precise lab sample preparation for composites, polymers, electronics, and battery research. CE certified with water cooling.

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Application	Description	Key Benefit
Advanced Composites Lamination	Consolidation of carbon fiber or glass fiber reinforced thermoplastic prepregs into solid laminates, using controlled heat and pressure cycles.	Uniform pressure and temperature ensure void-free bonding and precise thickness control for aerospace and automotive prototypes.
High-Performance Polymer Molding	Compression molding of polyimide (PI), PEEK, PTFE, and other high-temp resins into test specimens or functional components.	Multi-step heating programs allow controlled degassing and full cure without thermal degradation, yielding dimensionally stable parts.
Electronics & Semiconductor Packaging	Lamination of multilayer PCBs, flexible printed circuits, and solid-state battery electrolyte layers under stringent flatness requirements.	Dual-zone temperature control prevents warpage and ensures uniform bond strength across large areas, critical for reliable electronic assemblies.
Rubber & Elastomer Vulcanization	ASTM/ISO standard sample preparation for rubber compounds, including tensile, tear, and compression set specimens.	Fast cooling and consistent pressure help achieve reproducible mechanical properties across batches, supporting QC labs and material qualification.
Ceramic & Powder Compaction	Pressing of ceramic powders, battery electrode materials, or solid electrolytes into dense pellets or discs with minimal binder addition.	50-ton capacity and high parallelism produce high green density with uniform density distribution, improving sintered part quality.
Adhesive Bonding & Hot Stamping	Hot pressing of adhesive films, smart card lamination, or embossing of plastic surfaces with precise gap control.	Rapid temperature cycling and even pressure distribution improve bond integrity and throughput in process development.

Parameter	Value	Engineering Note
Model	XP03	Site-facing identifier for the 50-ton manual hot press system
Max Pressure	50 Tons (500 kN)	Meets the demands of large samples and high-density powder compaction
Pressure Drive Mode	Manual Hydraulic	Simple, reliable design with excellent tactile feedback for sensitive materials
Pressure Sensor Accuracy	±0.2% F.S. (High-precision digital transmitter)	Provides highly accurate force readings, supporting credible research data publication
Platen Size	500 × 500 mm	Ample forming area accommodates multiple molds or oversized plates
Maximum Daylight	150 mm	Optimized opening height balances ease of mold loading with clamping efficiency
Heating Platen Temperature	Room Temperature to 500°C	Extremely wide temperature range covers most thermoplastic and thermoset materials
Heating Control	Upper and lower platens independently controlled, with programmable curves	Dual-zone independent control prevents thermal imbalance; supports multi-step process ramps
Controller	7-inch color touch screen	Friendly interface provides real-time digital display of pressure and temperature curves
Frame Type	4-Column Guide	Precision cylindrical columns ensure high mechanical alignment and parallelism

Parameter	Value	Engineering Note
Cooling Method	Circulating Water Cooling	Integrated plate channels speed up cooling cycles and help control polymer crystalline structure
Power Supply	AC 3-Phase 380V, 50 Hz	Industrial-grade power ensures stable heating at high wattage
Certification	CE Certified	Compliant with EU safety and electrical standards for laboratory equipment