

30T Electric Vacuum Hot Press

Item Number: XP23



Introduction

KINTEK's electric vacuum hot press is designed to deliver precise temperature and pressure control up to 300°C and 30 tons, with inert gas environment, programmable multi-stage recipes, and fast active cooling, ideal for battery research and advanced materials processing.

[Learn More](#)

Application	Description	Key Benefit
Lithium-Ion Battery Electrode Pressing	Hot-pressing of cathode and anode films onto current collectors to improve interfacial adhesion and electrode density.	Uniform pressure and temperature eliminate delamination and reduce internal resistance, increasing cell performance.
Solid-State Battery Electrolyte Densification	Compaction of sulfide or oxide solid electrolytes under argon atmosphere to achieve high ionic conductivity without moisture contamination.	Inert environment preserves phase purity and ionic transport properties.
Advanced Composite Lamination	Multi-layer bonding of prepregs, thermoplastic films, or carbon fiber sheets for aerospace and automotive prototypes.	Programmable pressure and cooling ensure void-free laminates with consistent thickness.
Technical Ceramic Sintering	Pressure-assisted sintering of alumina, zirconia, or silicon nitride substrates under vacuum to remove binders and achieve full density.	Combination of vacuum extraction and precise thermal profiling yields defect-free ceramic parts.
Metal Matrix Composite (MMC) Fabrication	Warm pressing of metal powders (e.g., Al, Cu) reinforced with ceramic particles for thermal management or wear-resistant components.	Fast cooling after pressing limits grain growth, enhancing mechanical and thermal properties.
Hot Embossing of Polymer Films	Micro-structuring of thermoplastic films for microfluidic devices or optical components using heated plates and controlled force.	Accurate force and temperature control replicate fine features with high fidelity.
Thin-Film Laminate Sealing	Laminating barrier films for OLED or organic photovoltaic encapsulation in a moisture-free, oxygen-free environment.	Inert atmosphere prevents oxidation of sensitive organic layers during bonding.
R&D Material Synthesis	Exploring new material formulations and bonding processes with flexible recipe definition and comprehensive data logging.	Rapid iteration and data export accelerate material discovery and process scale-up.

System Subassembly	Parameter Description	Technical Standard
Model	-	XP23
Pressure System	Maximum Working Force	0 - 30 Tons (0 - 300 kN)
Pressure System	Platen Dimensions	400 x 400 mm
Pressure System	Pressure Controller	Programmable Touchscreen PLC
Thermal System	Working Temperature	Ambient - 300 °C
Thermal System	Heating Power	5600 W (5.6 kW)
Thermal System	Heating Rate	2 - 5 °C / min
Thermal System	Temperature Controller	Programmable Touchscreen PLC
Thermal System	Platen Cooling Method	Circulating Water Cooling (internal channels)
Environment Control	Vacuum Level	-0.1 MPa (rough vacuum configuration)
Environment Control	Vacuum Chamber Material	SUS 304 Stainless Steel

System Subassembly	Parameter Description	Technical Standard
Environment Control	Process Atmosphere	Nitrogen (N ₂) / Argon (Ar) Inert Gases
Facility & Utility	Power Supply	AC 220V / 50Hz (380V 3-Phase optional upon request)
Facility & Utility	Dimensions (Chamber & Control Cabinet)	550 × 600 × 850 mm