

Automatic Integrated Hot Press 300X400Mm 20 Ton Fast Heating

Item Number: XP44



Introduction

High-performance automatic integrated hot press featuring 300x400mm platens, 20-ton force delivering 1.67 MPa pressure, 12.6kW rapid heating, PID programmable temperature control, and water cooling system. Ideal for polymer and composite material research, rubber vulcanization, and electronic packaging in laboratory and pilot production.

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Application	Description	Key Benefit
Rubber & Silicone Vulcanization	High-pressure precision curing of rubber, silicone, and elastomers for gaskets, seals, and molded parts. The controlled pressure and temperature ensure complete cross-linking without degrading the material.	Ensures uniform cross-linking, dimensional stability, and minimal flash, meeting tight tolerances for automotive and medical applications.
High-Performance Composites	Fabrication of carbon fiber, glass fiber, and Kevlar® reinforced epoxy or thermoplastic matrix laminates. The high unit pressure consolidates prepreg layers into dense, void-free structures.	Achieves high fiber volume fraction and void-free consolidation, critical for structural components in aerospace and sporting goods.
Electronic Packaging & PCB Lamination	Hot pressing of multilayer printed circuit boards, semiconductor packaging, and flexible electronics. Uniform heat and pressure are essential for bonding layers without damaging delicate traces.	Delivers precise layer registration and void-free bonding for reliable circuitry, improving yield in high-reliability electronics.
Thermoplastic & Thermoset Molding	Compression molding of engineering plastics like PEEK, PTFE, and phenolic resins into test specimens or prototype parts. The rapid heating and cooling cycles enable efficient processing of high-temperature polymers.	Produces flat, stress-relieved plaques with consistent thickness and surface finish for mechanical testing and quality control.
Battery Electrode & Cell Assembly	Pressing of cathode/anode films and solid-state battery cell stacking under controlled temperature and pressure. Uniform pressure ensures optimal electrode density and interfacial contact.	Enhances electrode density and interfacial contact for improved battery performance and cycle life in next-generation energy storage.
Adhesive Bonding & Curing	Heat-activated adhesive bonding of dissimilar materials—metal, glass, ceramics—for structural or optical assemblies. Precise temperature control prevents thermal degradation of sensitive adhesives.	Uniform pressure and temperature ensure strong, bubble-free bonds with consistent shear strength, reducing assembly failures.
Powder Compaction & Sintering Prep	Uniaxial pressing of metal, ceramic, or pharmaceutical powders into green bodies prior to sintering. High unit pressure yields high green density and uniform part geometry.	Delivers high green density and uniform part geometry, reducing sintering shrinkage and improving final product quality.

Automotive Gasket & Friction Material	Production of head gaskets, brake pads, and clutch facings through high-temperature compression molding. The system maintains precise thickness control under heavy loads.	Meets automotive standards for dimensional accuracy and material consistency, ensuring reliable performance in demanding engine environments.
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Parameter	Specification
Model	XP44
Press Type	Automatic integrated cabinet hot press with hydraulic power unit and dual heated platens
Maximum Force	0 – 20 metric tons (continuously adjustable), providing up to 1.67 MPa unit pressure on the 300×400 mm area
Platen Dimensions	300 × 400 mm, precision-ground hardened steel, dual platens with independent temperature control
Stroke	60 mm

Parameter	Specification
Maximum Daylight	160 mm (distance between platens at full opening)
Temperature Range	Ambient to 300°C, settable in 0.1°C increments, with PID control accuracy $\pm 1^{\circ}\text{C}$
Heating Power	Total 12.6 kW (2 $\times$ 6300 W cartridge or resistive heaters embedded in each platen) for rapid heating
Temperature Control	Dual-channel programmable PID controller, supports up to 20 segments per channel, RS-485 communication ready
Cooling System	Integrated water circulation channels in both platens; compatible with tap water or optional dedicated chiller (available at additional cost) for accelerated cooling
Power Requirements	3-phase AC 380V, 50Hz; requires a dedicated circuit with 25A or higher circuit breaker; supplied with 5-meter power cable without plug
Safety Features	Dual-hand start, emergency stop mushroom button, transparent safety shield with interlock, over-temperature alarm
Dimensions (WxDxH)	Approx. 900 $\times$ 700 $\times$ 1600 mm (excluding external chiller); net weight approx. 450 kg