

Intelligent Desktop Manual Thermal Press With Dual Heating Real Time Mpa And Water Cooling For Glovebox

Item Number: XP02



Introduction

This compact benchtop thermal press delivers precise temperature and pressure control for materials research, with real-time MPa stress calculation, dual independent heating up to 300°C, and water-cooled thermal isolation. Ideal for glovebox-based solid-state battery development and FTIR sample preparation.

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Application	Description	Key Advantage
Solid-State Battery Pellet Pressing	Compressing sulfide/oxide electrolyte powders into dense pellets at controlled temperatures and MPa for conductivity testing.	Guarantees repeatable density and interfacial contact, which are critical for battery performance research.
FTIR Sample Preparation	Preparing transparent KBr or CsI pellets for infrared spectroscopic analysis directly under vacuum or inert conditions inside a glovebox.	Prevents moisture absorption and ensures spectral clarity with uniform thickness and pressure.
Polymer Film Lamination	Laminating multi-layer polymer films under heat and pressure to simulate barrier properties or produce lightweight composites.	Achieves consistent bonding strength and thickness through precise temperature-pressure profiles.
Ceramic Powder Compaction	Uniaxially pressing technical ceramic powders (e.g., alumina, zirconia) into green bodies for sintering trials.	High pressure and uniform heating minimize density gradients, improving the quality of sintered parts.
High-Temperature Composite Molding	Molding thermoplastic or thermoset composites using custom heating cycles up to 300 °C.	Dual-platen control ensures uniform curing and minimal warping.
XRF Pellet Preparation	Preparing pressed powder pellets for X-ray fluorescence analysis, ensuring flat and homogeneous surfaces.	Eliminates binder migration and yields highly reproducible analytical results.
Thin-Film Electrode Preparation	Pressing active material thin films onto current collectors for supercapacitors or battery cathodes.	Real-time MPa control prevents particle cracking and ensures film integrity.
Glovebox Containment Research	Performing operations requiring inert atmospheres, such as handling moisture-sensitive materials, without exposing samples to ambient air.	The compact, oil-sealed design keeps the glovebox environment pure.

Parameter	Value	Notes
Model	XP02	Unique website identifier
Maximum Design Load	0 – 5 Tons (50 kN)	Manual hydraulic drive
Drive Mechanism	Ergonomic manual lever	One-way pressure retention valve for extended dwell times
Operating Temperature Range	Room Temperature – 300 °C	PID control with ±1 °C resolution
Heater Rated Power	700 W (Total)	Embedded in both platens
Platen Dimensions (Each)	120 × 120 mm	Uniform heating area
Maximum Daylight / Platen Clearance	50 mm	Minimizes cylinder stroke for easy glovebox access
Footprint (L × W × H)	250 × 230 × 390 mm	Suitable for antechambers with diameter ≥360 mm
HMI Display	7-inch industrial touchscreen	Dual-language real-time readings

Real-Time Data	Temperature, timer, force, calculated stress (MPa)	Includes zero-offset calibration
Cooling Method	Dual-plate water cooling circuit (optional)	Rear $\Phi 8$ mm quick-connect ports
Cooling Connector	2 $\times$ $\Phi 8$ mm quick-connect fittings	Optional PTFE tubing available
Power Supply	Single-phase AC 220 V / 50 Hz (700 W)	Current draw 3.5 A; 110 V / 60 Hz configurable
Net Weight	55 kg	Well-balanced for easy handling
Safety Certification	CE	
Hydraulic Fluid Handling	Outgassing-resistant, low-volatility	Designed for glovebox inert gas protection
Optional Add-ons	Ultra-flexible PTFE glovebox hoses, high-hardness custom dies, benchtop water pump	Available upon request