# 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.

Learn More

| 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 |

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| **Real-Time Data** | Temperature, timer, force, calculated stress (MPa) | Includes zero-offset calibration |
| **Cooling Method** | Dual-plate water cooling circuit (optional) | Rear Φ8 mm quick-connect ports |
| **Cooling Connector** | 2 × Φ8 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 |