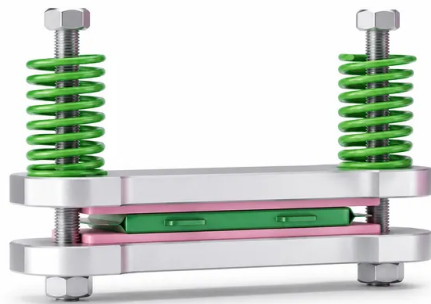


Polymer Battery Pressure Test Fixture For Pouch Cell Clamping And Cycling Analysis

Item Number: JA10



Introduction

Engineered for precision battery research this polymer battery pressure test fixture delivers uniform mechanical compression from 0 to 3000 N featuring durable 8 mm aluminum plates resilient silicone cushioning pads and precision springs to stabilize pouch cell cycling performance.

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Application	Description	Key Benefit
Pouch Cell Cycling Life Evaluation	Continuous mechanical restraint applied during long-term galvanostatic charge-discharge cycling in temperature chambers.	Prevents interlayer delamination and maintains intimate electrode-separator contact to extend cycle life.
Solid-State Battery Interface Testing	High-pressure mechanical compression applied to solid electrolyte-electrode interfaces during electrochemical evaluation.	Overcomes high solid-solid interfacial resistance by maintaining up to 3000 N of continuous intimate contact.
Electrode Swelling and Dilatometry Studies	Constrained volume testing to study mechanical expansion forces generated by silicon-anode and high-nickel cathode volume changes.	Accurately models real-world module constraints to evaluate binder integrity and active material degradation.
Electrochemical Impedance Spectroscopy (EIS)	Stable compression during high-frequency impedance sweeps under varying states of charge (SOC) and physical loads.	Eliminates contact resistance artifacts, isolating pure charge-transfer and solid-electrolyte interphase (SEI) kinetics.
Fast-Charging Lithium Plating Analysis	Application of uniform stack pressure during high C-rate charging protocols to evaluate lithium dendrite suppression.	Suppresses localized current density hot spots, providing uniform ionic flux and reducing short-circuit risks.
Post-Mortem Pouch Cell Autopsy Preparation	Safe, controlled mechanical containment during cell resting, degassing, and preparation before glovebox teardown.	Preserves the layered architecture under standard physical dimensions prior to physical cross-sectioning.

Specification Parameter	Technical Data (JA10)
Product Identification	JA10
Maximum Pouch Cell Dimensions	90 mm (L) × 82 mm (W)
Maximum Clamping Load	3000 N
Operating Pressure Range	0 N to 3000 N
Fixture Plate Material	High-Strength Aluminum Alloy
Fixture Plate Thickness	8.0 mm
Overall Fixture Dimensions	90 mm (W) × 110 mm (L)

Component Description	Dimensions / Specifications	Quantity Included
Rectangular Compression Springs	Outer Diameter: 14 mm	4 pcs
Hexagon Socket Fastener Screws	M6 × 60 mm (L)	4 pcs
Precision Hexagon Fastener Nuts	M6 Standard	4 pcs
Dielectric Card Stock Liners	90 mm × 84 mm × 0.25 mm (T)	2 pcs

Component Description	Dimensions / Specifications	Quantity Included
Elastomeric Silicone Cushions	90 mm × 84 mm × 2.0 mm (T)	2 pcs

Step Number	Process Stage	Procedural Instructions
Step 1	Safety Disconnection	Isolate and turn off all electrical test leads and power supplies connected to the battery cell.
Step 2	Fastener Release	Loosen the four M6 hexagonal securing screws evenly in a cross-diagonal pattern.
Step 3	Top Plate Removal	Lift and remove the 8 mm aluminum upper fixture plate along with the top spring set.
Step 4	Cell Positioning	Center the pouch cell between the silicone damping pads and insulation paper liners on the base plate.
Step 5	Reassembly & Pre-load	Replace the upper aluminum plate and pre-tighten the M6 screws to the targeted experimental torque.