

Semi Automatic Z Fold Stacking Machine For Sodium Ion And Advanced Battery Cell Prototyping

Item Number: DP01



Introduction

Optimize pouch cell prototyping with this semi-automatic Z-fold stacking machine, engineered for sodium-ion and lithium battery research with precision pneumatic controls, digital counting, and adaptable electrode sheet tooling for consistent laboratory fabrication.

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Application	Description	Key Benefit
Sodium-Ion Battery Research	Precision stacking of thick, brittle hard-carbon anodes and sodium transition-metal oxide cathodes with specialized polymer separators.	Minimizes mechanical stress and edge cracking on fragile sodium-ion active material coatings during layer interleaving.
Lithium-Ion Pouch Cell Prototyping	Assembly of multilayer NCM, LFP, and silicon-anode pouch cells for electrochemical testing and rate-capability evaluation.	Ensures micron-level stacking alignment to prevent edge overhang, edge-induced lithium plating, and premature short circuits.
Solid-State & Hybrid Electrolyte R&D	Interleaving composite solid electrolyte films or coated ceramic separators with high-capacity electrode pairings under uniform tension.	Prevents separator tearing and preserves fragile ceramic/polymer interfacial coatings through smooth swing-arm motion.
Supercapacitor Stack Assembly	Rapid Z-folding of high-surface-area activated carbon electrodes with porous cellulose or synthetic separators.	Delivers consistent stack parallelism and precise compression tolerance across ultra-thin electrode laminates.
Battery Material Screening Laboratories	Pilot validation of novel binders, conductive additives, and current collector foils across varying sheet thicknesses.	Facilitates rapid dimension adjustments without requiring custom tooling sets, accelerating experimental turnaround times.
Academic & Industrial Pilot Lines	Educational training and small-scale pilot cell manufacturing for pre-commercial verification and qualification runs.	Combines high stacking repeatability, low operational complexity, and robust safety protocols in a space-efficient format.

Specification Parameter	Technical Detail (DP01)
Stacking Method	Semi-Automatic Z-Shape Interleaving (Z-Fold)
Separator Roll Compatibility	Continuous roll separator, 3.0-inch (76 mm) core
Maximum Separator Roll Diameter	φ200 mm
Applicable Electrode Length	20 mm to 200 mm
Applicable Electrode Width	20 mm to 200 mm
Maximum Stack Thickness	Up to 18 mm
Swing Roller Stroke	300 mm
Operating Control Method	Pneumatic foot-switch actuation with digital counter
Pneumatic Supply Requirement	0.4 MPa to 0.7 MPa clean, dry compressed air
Power Supply	AC 220V ±10%, 50 Hz, Single Phase
Rated Power Consumption	200 W
Main Equipment Dimensions	650 mm (L) × 400 mm (W) × 700 mm (H)
Control Box Dimensions	200 mm (L) × 300 mm (W) × 380 mm (H)

Specification Parameter	Technical Detail (DP01)
Net Equipment Weight	30 kg