

Lithium Ion Battery Semi Automatic Stacking Machine

Item Number: RB04



Introduction

Semi automatic lithium ion battery stacking machine delivers precise Z folding electrode and separator assembly with automatic alignment tension control and programmable layers for flexible cell research sample fabrication in advanced laboratory development workflows and pilot production tasks.

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Application	Description	Key Benefit
Lithium-ion battery R&D	Builds Z-fold electrode and separator stacks for development-stage lithium-ion cells.	Combines manual electrode selection with automated positioning and stacking for flexible research work.
Prototype pouch-cell preparation	Prepares multilayer stacks for prototype cell formats with electrode tabs included within the stated stacking range.	Adjustable positioning fixtures accommodate changing prototype dimensions.
Sample-cell fabrication	Produces sample stacks where a preset number of layers is required for a planned cell design.	Automatic layer-count control supports repeatable stack-build targets up to 500 layers.
Electrode-material evaluation	Supports assembly of test cells made with alternative positive or negative electrode materials.	Manual sheet loading provides useful flexibility when electrode samples vary between experiments.
Separator-feed process development	Allows laboratories to observe and apply controlled roll-fed separator handling during stacking.	Servo constant-tension control and photoelectric correction provide controlled separator-web management.
Battery teaching laboratories	Supports hands-on instruction in electrode, separator, and Z-stacking assembly sequences.	The semi-automatic workflow makes the transition from manual loading to automated stacking visible and manageable.
Small-batch stacked-cell development	Handles repeated sample builds where cell dimensions may be adjusted between projects.	Broad fixture-adjustment capability helps reduce disruption when switching between supported cell sizes.

Parameter	Specification
Product item number	RB04
Stacking method	Z-shaped stacking
Operating method	Robotic arm automatic material pickup and stacking; automatic separator pulling; automatic correction; constant-tension control
Electrode loading	Manual loading; automatic positioning; robotic arm automatic sheet pickup; automatic layer stacking
Stacking accuracy	Neatness $\leq \pm 0.3\text{mm}$
Stacking range	Battery Min. L35mm W35mm; Max. L200mm W200mm, including tabs
Maximum stacking thickness	Max.30mm
Maximum stacking layers	Max.500, programmable
Separator roll diameter	Max.250mm
Separator roll core	3-inch roll core, clamped by pneumatic expanding shaft
Separator tension control	Automatic servo constant-tension control for roll-fed separator
Separator correction control	Automatic photoelectric web-guiding correction control
Lateral movement control	Pulse-motor control; precise positioning and convenient fine adjustment

Parameter	Specification
Control system	PLC control with HMI operation
Structural design	Single-cantilever structure
Installation dimensions	L1000mmW780mmH1050mm
Packaging dimensions	L1200mm×1180mm×1300mm
Gross weight	356kg
Net weight	285kg
Power supply	Voltage single-phase AC220V±10% (customizable 110VAC); frequency 50Hz/60Hz; power 0.6KW
Air supply	0.5~0.8MPa compressed air
Recommended operating environment	Ambient temperature 25±3°C; humidity 30~90RH; no vibration or electromagnetic interference
Routine cleaning requirement	Frequently wipe the swing roller and stacking table to keep them clean
Lubrication requirement	Lubricate moving bearing and slide-rail parts to maintain smooth movement
Storage requirement	If not used for a long time, wipe the machine surface clean and store it wrapped with packaging tape
Fastener inspection requirement	Regularly inspect screws, nuts, pins, and other fasteners to prevent loosening and avoid equipment-quality and personal-safety incidents