

Semi Automatic Z Fold Stacking Machine For Prismatic Lithium Ion Power Batteries

Item Number: FX05



Introduction

Improve prismatic lithium ion power battery production with a semi automatic Z fold stacking machine delivering controlled diaphragm alignment accurate electrode placement and dependable high yield stacking for demanding cell manufacturing lines for quality focused pilot operations daily.

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Application	Description	Key Benefit
Prismatic lithium-ion power cell manufacturing	Alternately stacks positive and negative electrodes with separator material in a Z-fold configuration for rectangular power-cell construction.	Controlled electrode and separator registration supports consistent stack formation.
Electric mobility battery pilot lines	Supports semi-automatic stack preparation during development and pilot production of prismatic cells intended for electric mobility programs.	Configurable layer count accommodates stacks within the applicable thickness range.
Stationary energy-storage cell production	Forms electrode/separator stacks for prismatic lithium-ion cells used in stationary storage manufacturing workflows.	Separator tension control and correction help maintain an orderly separator path.
Industrial battery process development	Provides a defined stacking sequence for teams evaluating electrode handling, stack alignment, and separator management in power-cell development.	Secondary positioning gives a repeatable electrode-location step before placement.
Cell assembly process validation	Enables process teams to review stack geometry and operational handling through specified alignment values for adjacent, overall, and separator-related registration.	Measurable alignment specifications provide clear process reference criteria.
Electrode handling with particulate-control requirements	Handles electrodes from material boxes through secondary positioning with dust-extraction provisions at both stages.	Localized extraction supports cleaner handling around feed and positioning operations.
Semi-automatic cell assembly stations	Integrates automatic stacking with manual tail winding, tape application, and finished-cell removal in a defined operator-supported sequence.	Balances automated stack formation with controlled manual completion tasks.

Parameter	Specification
Product Item Number	FX05
Stacking method	Z-fold stacking
Applicable process	Stacking process for prismatic lithium-ion power batteries
Stacking speed	1.3-1.6 s/pcs
Auxiliary time	15-20 s
Electrode-to-separator alignment accuracy	Center deviation +/-0.4 mm
Separator end-face alignment accuracy	+/-0.3 mm
Adjacent electrode alignment accuracy	+/-0.2 mm
Overall electrode alignment accuracy	+/-0.3 mm
Stacking layer count	Settable within the thickness adaptation range
Separator unwinding	Motor-driven active unwinding

Parameter	Specification
Separator control	Tension control and full-process correction
Electrode handling	Positive and negative electrodes retrieved from material boxes by reciprocating suction-cup manipulators
Electrode positioning	Secondary positioning platform before stacking
Stacking-table compression	Four cross-operating pressing-blade mechanisms
Blade protection mechanism	Blade slightly lifts away from electrode before withdrawal to prevent electrode pulling damage
Multiple-sheet and missed-sheet control	Material-box air blowing, sheet-separating brushes, and external-suction-cup manipulator sheet shaking
Dust extraction	Installed at material boxes and secondary positioning area
Separator outside wrapping	Machine reserves separator during empty stacking; manual tail winding and manual tape application
Cell completion	Separator cutting, cell transfer from stacking table, manual tape application, and manual cell removal
Qualification rate	99% (defects caused only by this machine)
Operating rate	98% (failures caused only by this machine)
Power	2 kW
Overall dimensions	W1550 x L1250 x H1850 mm
Weight / floor loading	Approx. 800 kg; >450 kg/m ²
Color	Computer gray; color-standard sample required if another color is requested
Power supply	AC220V single phase; voltage fluctuation +/-10%
Compressed air	0.5-0.7 MPa (5-7 kgf/cm ²), consumption 100 L/min
Ambient temperature	5-35C
Relative humidity	5-55% HR
Air / dust requirements	No saline gas, toxic gas, or corrosive gas; no conductive dust
Magnetic field and vibration requirements	No magnetic field affecting the equipment; no impact or clearly perceptible vibration