

Fully Automatic Lithium Battery Positive And Negative Electrode Sheet Making Machine With Tab Welding And Automatic Rewinding

Item Number: DH14



Introduction

Fully automatic lithium battery electrode sheet making machine integrates ultrasonic tab welding protective tape application inspection dust collection and precision rewinding for positive and negative electrode production with reliable alignment high yield and consistent cell manufacturing performance.

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Application	Description	Key Benefit
Lithium-Ion Positive Electrode Preparation	Processes slit positive-electrode rolls through tab welding, a single set of opposed protective-tape application, dust removal, and rewinding.	Provides a defined, automated route for producing positive electrode rolls with protected tab areas.
Lithium-Ion Negative Electrode Preparation	Processes negative-electrode material with two welding assemblies, two tabs welded once each, two sets of opposed tape application, and rewinding.	Supports the specified dual-tab negative-electrode process in one equipment configuration.
Pouch Cell Electrode Manufacturing	Produces tab-welded and tape-protected electrode sheets that can be transferred to downstream pouch-cell assembly operations.	Improves consistency of tab placement and protection before cell stacking or packaging.
Battery Pilot-Line Production	Provides a compact automated processing stage for development lines using electrode sheets from 300 mm to 2000 mm long.	Enables repeatable process evaluation without relying on manual tab and tape placement.
Cell Process Development	Allows teams to work with electrode widths from 40 mm to 130 mm, tab widths of 3, 4, 5, or 6 mm, and adjustable tape width.	Gives R&D teams parameter coverage for evaluating multiple electrode and tab formats.
Electrode Roll Finishing	Automatically collects processed single electrode sheets into complete rolls after traction and powder removal.	Produces aligned rolls with ± 1 mm rewinding alignment accuracy and pressure-roll support against edge bursting.
Quality-Controlled Electrode Processing	Uses welding-presence and tape-presence checks during the intermediate process, with manual reverse capability for correction.	Helps operators address missed operations before the electrode material progresses further.

Parameter	DH14 Positive Electrode Configuration	DH14 Negative Electrode Configuration
Equipment type	Fully automatic lithium battery positive electrode sheet making machine	Fully automatic lithium battery negative electrode sheet making machine
Equipment dimensions	Approx. 2000L900W1600H	Approx. 3030L900W1600H
Weight	Approx. 600 kg	Approx. 700 kg
Power supply	Single-phase AC220V 50HZ	Single-phase AC220V 50HZ
Power	Approx. 6.0KW	Approx. 6.0KW
Air source pressure	5~7 kgf/cm ²	5~7 kgf/cm ²
Air consumption	Approx. 50 l/min	Approx. 60l/min
Operating environment	No corrosive gas, liquid, or explosive gas	No corrosive gas, liquid, or explosive gas

Parameter	DH14 Positive Electrode Configuration	DH14 Negative Electrode Configuration
Blowing section	Tab tape, vacuum generator, and similar blowing components are separate from the equipment air-source triple unit	Tab tape, vacuum generator, and similar blowing components are separate from the equipment air-source triple unit
Noise requirement	Complies with TJ36-79 Industrial Enterprise Design Hygiene Standard requirements and GB3096-82; measured at 1 m from equipment; no-load operation $\leq 75\text{dB}$; cutting and loaded operation $\leq 85\text{dB}$; equipment noise not to exceed 80dB(A)	Complies with TJ36-79 Industrial Enterprise Design Hygiene Standard requirements and GB3096-82; measured at 1 m from equipment; no-load operation $\leq 75\text{dB}$; cutting and loaded operation $\leq 85\text{dB}$; equipment noise not to exceed 80dB(A)
Electrode thickness	90um-250um	90um-250um
Electrode width	40mm-130mm	40mm-130mm
Guide-roller material condition	No wrinkling or wavy edges as electrode passes through rollers	No wrinkling or wavy edges as electrode passes through rollers
Individual electrode sheet length	300 mm-2000 mm	300 mm-2000 mm
Tab width	3, 4, 5, 6mm; two types	3, 4, 5, 6mm; two types
Protective tape width	6-20; adjustable width; one set of opposed application	6-20; adjustable width; two sets of opposed application
Tape application length	40mm-80mm	40mm-80mm
Tab length	30 mm-80mm	30 mm-80mm
Exposed tab length	10 mm-25mm; tab encapsulation	10 mm-25mm; tab embossing
Tab tape position accuracy	$\pm 0.5\text{mm}$	$\pm 0.5\text{mm}$
Tab protective-tape length position accuracy	$\pm 0.5\text{mm}$; two protective-tape application mechanisms	$\pm 0.5\text{mm}$; four protective-tape application mechanisms
Tab welding length error	$\pm 0.5\text{ mm}$; no tab warpage or deformation; cut end burr $\leq 0.01\text{mm}$; cutter effective life $\geq 100\text{ }\square$ cycles	$\pm 0.5\text{ mm}$; no tab warpage or deformation; cut end burr $\leq 0.01\text{mm}$; cutter effective life $\geq 200\text{ }\square$ cycles
Tab welding position error	$\pm 0.5\text{mm}$; welding effective area $\geq 80\%$; welding tensile force $\geq 15\text{N}$; no over-welding or false welding; welding head and welding seat effective life $\geq 100\text{ }\square$ cycles	$\pm 0.5\text{mm}$; welding effective area $\geq 80\%$; welding tensile force $\geq 15\text{N}$; no over-welding or false welding; welding head and welding seat effective life $\geq 20\text{ }\square$ cycles
Welding mechanism	One set	Two sets
Tab welding inclination	$\pm 2^\circ$	$\pm 2^\circ$
Rewinding function	Alignment accuracy $\pm 1\text{mm}$; pressure-roll mechanism to prevent edge bursting	Alignment accuracy $\pm 1\text{mm}$; pressure-roll mechanism to prevent edge bursting
Production speed	One tab welded once; approx. $\geq 20\text{PCS/minute}$ within 1700mm; opposed application once	Two tabs each welded once; approx. $\geq 20\text{PCS/minute}$ within 1700mm; each opposed application once
Qualified product rate	$\geq 97\%$	$\geq 97\%$
Operating rate	$\geq 94\%$	$\geq 94\%$
Standard ultrasonic welding	Chinese KEPu	Domestic brand KEPu
Servo control	Delta	Delta
Electrode powder removal	Powder brushing and dust-collection device installed at rewinding guide roller for brushing and extraction	Powder brushing and dust-collection device installed at rewinding guide roller for brushing and extraction