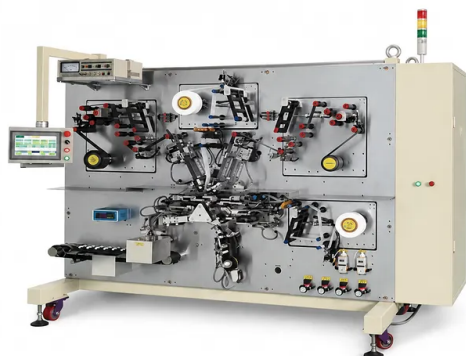


Automatic Cylindrical Lithium Battery Winding Machine For Cell Assembly

Item Number: JR02



Introduction

Optimize commercial cell manufacturing with this automatic cylindrical lithium battery winding machine featuring servo driven turntable indexing segmented tension control dual semi needle winding rapid five minute changeovers and comprehensive integrated short circuit testing for zero defect battery fabrication

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Application	Description	Key Benefit
18650 & 21700 Power Cell Manufacturing	Continuous winding of high-capacity cylindrical battery cores for electric vehicles, e-mobility, and cordless power tools.	Delivers high-speed cycle times with precise tension control to eliminate electrode fracture.
Energy Storage System (ESS) Cells	Fabrication of durable cylindrical cells optimized for residential and industrial grid storage arrays.	Maintains tight separator overhang to prevent internal short circuits and ensure long cyclic life.
Consumer Electronics Battery Assembly	Production of standard and custom-sized cylindrical cells (e.g., 16650, 18500) for portable electronics.	Flexible recipe management and 5-minute needle tooling changeover optimize multi-SKU lines.
Sodium-Ion Cylindrical Cell Pilot Lines	Precision winding of emerging sodium-ion and thick-coated advanced chemistry electrode materials.	Active dust extraction and segmented proportional tension prevent active material delamination.
High-Rate Cylindrical Cell Assembly	Winding specialized power cells with multi-tab or continuous through-welded tab configurations.	Accommodates up to two tabs per electrode plate without causing local thickness bulging or misalignment.
Solid-State & Hybrid Electrolyte R&D	Prototype fabrication of multi-layer cylindrical jelly rolls incorporating ultra-thin polymer separators.	Integrated static elimination and low-friction guiding prevent delicate separator tearing.

Parameter Category	Specification Details (Item: JR02)
Product Item Number	JR02
Cathode Material Width	40 mm – 66 mm
Cathode Material Thickness	0.1 mm – 0.2 mm
Cathode Roll Outer Diameter (Max)	≤ ϕ400 mm (Inner Diameter: ϕ76.2 mm / 3.0 inch)
Anode Material Width	42 mm – 68 mm
Anode Material Thickness	0.1 mm – 0.2 mm
Anode Roll Outer Diameter (Max)	≤ ϕ400 mm (Inner Diameter: ϕ76.2 mm / 3.0 inch)
Separator Material Width	44 mm – 70 mm
Separator Material Thickness	0.015 mm – 0.030 mm
Separator Roll Outer Diameter (Max)	≤ ϕ300 mm (Inner Diameter: ϕ76.2 mm / 3.0 inch)
Termination Tape Width	20 mm – 60 mm
Termination Tape Thickness	0.02 mm – 0.05 mm

Parameter Category	Specification Details (Item: JR02)
Termination Tape Roll Outer Diameter (Max)	≤ ϕ150 mm (Inner Diameter: ϕ76.2 mm / 3.0 inch)
Electrode Tab Constraints	≤ 2 tabs per single electrode; through-weld process recommended; exposed length < 25 mm
Infeed Sequence Configuration	Software-switchable between Cathode-First and Anode-First infeed modes
Electrode Slicing & Quality Tolerances	Slitting width tolerance < ±0.05 mm; coating wave < 1 mm; camber/camber bend < 0.3 mm / 1000 mm; roll telescoping < ±1 mm
Defective Material Tracking	Automatic detection of color-coded optical defect marks for manual splice/fault identification
Compatible Core Formats	Cylindrical diameter ϕ16 mm – ϕ28 mm; applicable core width 50 mm – 60 mm
Winding Needle Changeover Duration	≤ 5 minutes
Electrical Power Supply	Single-Phase AC 220 V ± 10%, 50 Hz
Total Power Consumption	Approximately 10 kW
Compressed Air Requirements	5.0 – 7.0 kgf/cm ² (0.5 – 0.7 MPa), flow rate ~100 L/min (clean, dry, non-corrosive, non-explosive)
Pneumatic Separation	Air blow-off circuit physically isolated from main air preparation FRL filter unit
Operational Noise Level	Conforms to TJ36-79 & GB3096-82; idle noise ≤ 75 dB(A) at 1 m distance; cutting/loaded noise ≤ 85 dB(A)
Overall Equipment Dimensions	Approximately 2400 mm (L) × 1500 mm (W) × 2100 mm (H) (excluding conveyor extensions)
Machine Physical Mass	Approximately 3000 kg
Control Cabinet Layout	Right-hand mounted electrical enclosure to maintain unhindered downstream process flow