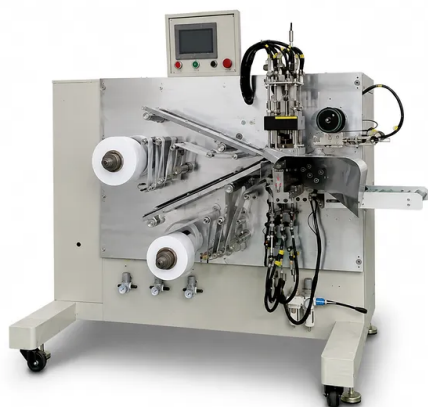


Supercapacitor Semi Automatic Winding Machine For Cylindrical Lithium Ion Cells

Item Number: CX02



Introduction

Semi automatic winding machine for cylindrical lithium ion and supercapacitor cell production with controlled separator tension precise alignment automatic termination tape application and reliable cell unloading for research pilot line and manufacturing operations.

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Application	Description	Key Benefit
Cylindrical lithium-ion cell winding	Winds manually introduced positive and negative electrode sheets with separator material for applicable cylindrical cell formats.	Supports a defined separator-negative-positive wrapping sequence for cylindrical cell formation.
Battery research and development	Provides a controlled winding process for laboratories developing cylindrical lithium-ion cell structures and material combinations within the stated dimensions.	Adjustable winding speed and convenient specification changes support process evaluation work.
Pilot-line cell fabrication	Supports semi-automatic production workflows where operators feed electrode sheets and the equipment automatically winds, tapes, and unloads cells.	Combines manual material introduction with automatic downstream process steps.
Electrode and separator process validation	Processes electrode widths, separator widths, thicknesses, and roll materials within the stated requirements to evaluate winding compatibility.	Active separator tension adjustment helps maintain controlled material delivery during winding.
Cylindrical cell assembly preparation	Produces wound cell assemblies before later battery-cell assembly operations.	Automatic transverse termination-tape application and automatic unloading streamline the winding-stage handoff.
Advanced materials battery prototyping	Supports work using positive electrodes, negative electrodes, separators, and termination tapes that conform to the specified material dimensions.	Defined alignment criteria provide measurable winding targets for prototype evaluation.

Parameter	Specification
Product item number	CX02
Primary function	Precision winding of cylindrical lithium-ion battery cells
Operating sequence	Manual introduction of positive and negative electrode sheets; separator interleaving; winding; automatic termination-tape application; automatic cell unloading
Winding structure	Single-needle through-winding structure
Winding assemblies	Two sets; single-head through-winding configuration
Station-transfer assembly	One set; transfers between winding station and tape-application station
Separator-unwinding assemblies	Two sets; active separator-roll unwinding with pneumatic adjustment control
Separator tension control	Proximity-switch control technology; automatic smooth tension adjustment during winding
Electrode-guiding assemblies	Two sets; single-side adjustment
Taping and unloading assembly	One set
Termination-tape application direction	Transverse application; termination tape perpendicular to electrode tab
Termination-tape performance	Flat tape application; precisely controllable tape position; does not pull the cell tight; stable and reliable application

Parameter	Specification
Winding speed	Adjustable winding-needle winding speed
Electrode dust control	Electrode-sheet dust-removal device included
Separator finishing	Separator outer-wrap finishing
Process wrapping relationship	Separator completely wraps negative electrode; negative electrode wraps positive electrode
Separator pre-winding	Toothed-knife process; saves pre-winding separator length
Separator width	33-150 mm
Electrode sheet width	33-150 mm
Winding-needle specification	φ6-φ10 mm; customized according to customer requirements
Supplied winding needles	One set, according to customer requirements
Applicable cell outside diameter	φ35-62φ mm
Positive electrode length	200-6000 mm
Positive electrode width	33-150 mm
Positive electrode thickness	0.1-0.2 mm
Negative electrode length	200-600 mm
Negative electrode width	33-150 mm
Negative electrode thickness	0.1-0.2 mm
Separator material form	Roll
Separator width	20-180 mm
Separator thickness	0.016-0.045 mm
Separator roll inner diameter	76.2 mm
Separator roll outer diameter	250 mm
Termination-tape material form	Roll
Termination-tape width	10-50 mm
Termination-tape thickness	0.01-0.035 mm
Termination-tape roll inner diameter	76.2 mm
Termination-tape roll outer diameter	150 mm
Electrode width condition for winding accuracy	Width error less than ± 0.2 mm
Electrode curvature condition for winding accuracy	"S" bending error less than ± 1 mm/500 mm
Separator roll condition for winding accuracy	Roll taper error less than ± 0.2 mm
Separator alignment error	Less than ± 0.5 mm, when stated material conditions are met
Electrode alignment error	Less than ± 0.5 mm, when stated material conditions are met
Finished cross-section alignment	± 0.5 mm; negative electrode wraps positive electrode and separator wraps negative electrode
Cell condition after winding	No damage, core extraction, or electrode-sheet misalignment
Qualification rate	$\geq 98\%$ (excluding non-equipment factors)
Input power supply	AC220V, 1.5KVA, 50HZ
Compressed air supply	0.4-0.6MPa
Equipment weight	Approximately 500 kg
Equipment dimensions	1750mm1350mm1570mm (lengthwidthheight)
Dimension scope note	Does not include the extended length of the electrode-sheet material trough; unit: mm
Stated dimensional tolerances	W < 0.5 mm; D < 0.3 mm; L < 1000 mm