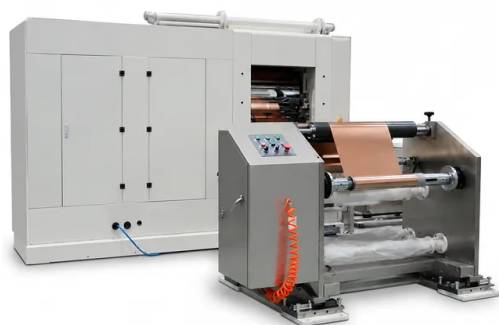


High Precision Lithium Battery Electrode Sheet Calendering Machine

Item Number: DG17



Introduction

High precision lithium battery electrode sheet calendering machine delivers controlled compaction, adjustable roll gaps, 4000 kN line pressure, accurate tension handling, and consistent electrode density for demanding cell manufacturing lines.

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Application	Description	Key Benefit
Lithium-ion cathode sheet calendering	Compacts coated cathode electrode sheets after coating to achieve the required thickness or compaction density before cell assembly.	Supports controlled electrode dimensions associated with designed volumetric energy density and battery performance.
Lithium-ion anode sheet calendering	Rolls coated anode sheets, including graphite or silicon-carbon composite material coatings, under controlled nip pressure.	Increases compaction density and promotes close contact between active material particles and the current collector.
Battery pilot-line process development	Provides a defined roll-pressure, gap, speed, tension, and web-guiding platform for evaluating electrode compaction settings during process development.	Enables repeatable process studies within the system's specified operating and handling ranges.
Electrode thickness control	Applies a digitally adjusted 0-2.0 mm roll gap to coated electrode webs that require a specified calendered thickness.	Fine 0.001 mm setting adjustment supports accurate setup for controlled rolling operations.
High-density electrode manufacturing	Processes loose coated electrode sheets using high line pressure to densify the electrode coating before winding or cell fabrication.	Helps manufacturers pursue the intended electrode compaction condition needed for cell energy-density targets.
Roll-to-roll electrode finishing	Combines calendering with unwind, rewind, tension-control, web-guiding, and edge-trimming capabilities for continuous electrode sheet processing.	Reduces material-handling interruptions by keeping the web controlled through a continuous processing route.
Battery cell fabrication preparation	Produces calendered electrode sheets for subsequent cutting, winding, stacking, and cell assembly operations.	Provides a stable, finished electrode-web condition for downstream manufacturing stages.
Advanced battery materials research	Supports controlled rolling of coated electrode sheets in battery R&D environments that need to compare density, thickness, and process settings.	Gives research teams measurable mechanical settings for structured electrode-process evaluation.

Parameter	Specification	Notes
Product item number	DG17	Site-facing identifier
Operating principle	The pulled electrode sheet passes through the nip of pressure-applied rolls. Pressure and the roll gap compact the loose electrode sheet to the predetermined thickness or compaction density.	The calendered electrode sheet is used to help lithium batteries achieve designed or predetermined volumetric energy density and battery performance.
Effective roll surface size	Phi 400 mm x 450 mm	
Effective rolling width	150-400 mm	
Line pressure between two rolls	Max 4000 kN	
Non-attenuating hardened layer	Min 19 mm	
Roll hardness	HRC $\geq$ 67	Hardness uniformity $\leq$ HS $\pm$ 2; inspection report provided.
Roll surface roughness	Ra $\leq$ 0.2	Inspection report provided.

Parameter	Specification	Notes
Roll straightness	$\leq \pm 0.0015 \text{ mm}$	
Installed radial runout	$\leq \pm 0.0025 \text{ mm}$	
Adjustable roll-gap range	0-2.0 mm	
Digital gap setting adjustment accuracy	0.001 mm	Left and right gaps between the two rolls are consistent.
Rolling accuracy	$\leq \pm 0.0015 \text{ mm}$	Coating accuracy $\leq \pm 0.003 \text{ mm}$.
Pressure control accuracy	$\leq 0.15 \text{ T}$	
Equipment operating speed	Max 20 m/min	
Edge-trimming width	150 mm-400 mm	
Maximum unwind/rewind roll diameter	Phi 500 mm	
Maximum unwind/rewind roll width	400 mm	
Maximum unwind/rewind roll weight	300 kg	
Roll core diameter	Phi 76 mm	
Unwind/rewind shaft radial runout during operation	$\leq \pm 0.03$	
Unwind/rewind shaft roll-surface roughness	$R_a \leq 0.15$	
Unwind/rewind shaft coaxiality	$\leq \pm 0.03$	
Web-guiding accuracy	Max. 0.2 mm	
Maximum unwind/rewind tension	0-50 N adjustable	
Main motor power	30 kW	
Total electrical power requirement	30 kW plus 10% safety factor	
Power supply	3PH 380V, 50HZ	
Permitted voltage fluctuation range	+8% to -8%	
Compressed-air requirement	Dried, filtered, pressure-stabilized compressed air; outlet pressure greater than 0.6-0.8 MPa	Air pipe: Phi 8.
Maximum ambient temperature	$\leq 28 \text{ degrees C}$	
Maximum relative humidity	$RH \leq 85\%$	
Main-machine foundation requirement	Cement thickness in the main load-bearing area not less than 40 cm; other areas not less than 10 cm	The battery electrode calender main machine requires a concrete foundation with floor bearing capacity not less than 10 t/m ² .
Site environment	Air must be dry and well ventilated, without acid or alkali corrosion.	
Equipment color	Except for stainless-steel, surface-treated, and plated parts, all other external surfaces are painted in International Warm Gray.	
Calender overall dimensions	Approx. 2.9 m x 1.2 m x 2.1 m	
Calender production-line overall dimensions	7.0 m x 3.5 m x 2.5 m	
Calender weight	Approx. 14 tonnes	
Calender production-line weight	Approx. 14 tonnes	