

Single Sided Battery Electrode Extrusion Coating Machine

Item Number: TB20



Introduction

Single-sided battery electrode coating machine delivers precise intermittent and continuous slurry application, stable web tension, controlled electric drying, and consistent coatings for lithium-ion battery research, pilot production, and advanced materials development across demanding laboratory and development workflows every day.

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Application	Description	Key Benefit
Lithium iron phosphate cathode development	Coat oil-based or water-based lithium iron phosphate slurry onto aluminum foil for formulation and process evaluation.	Supports controlled comparison of coating width, dry thickness, and drying conditions.
Carbon graphite anode preparation	Process oil-based or water-based carbon graphite slurry on copper foil for anode electrode development.	Accommodates specified anode solids-content ranges for PVDF and SBR systems.
Ternary and nickel cobalt manganese cathode trials	Produce coated electrode samples using oil-based ternary or nickel cobalt manganese slurry systems.	Closed-loop tension and servo-driven operation support consistent foil handling during development runs.
Lithium cobalt oxide electrode research	Apply oil-based lithium cobalt oxide slurry for laboratory electrode preparation and coating studies.	Intermittent and continuous coating modes support different electrode formats.
Lithium manganate material evaluation	Create coated lithium manganate electrodes for materials research and cell-fabrication experiments.	Adjustable airflow and independently controlled oven sections support drying-process investigation.
Lithium titanate electrode processing	Coat lithium titanate slurry for specialized electrode research and pilot preparation.	Compatible slurry-viscosity range supports process adaptation across specified material systems.
Patterned electrode and tab-area coating	Produce front-and-back unequal-pitch intermittent coating patterns with automatic second-side tracking.	Enables short intermittent lengths for electrode layouts requiring uncoated or patterned zones.
Battery pilot-process optimization	Evaluate substrate, slurry, coating, and electric drying conditions before transferring a process to larger production equipment.	Integrates web transport, coating, and three-section drying in a single controlled workflow.

Parameter	TB20 Specification	Remarks
Equipment overall dimensions	Length 3950 mm x width 1060 x height 1192 mm	
Weight	Approx. 1.0 T	
Power supply	3PH 380V, 50HZ	Voltage fluctuation range: +8% to -8%
Total startup power	30KW	
Compressed air	Dried, filtered, pressure-stabilized outlet pressure greater than 5.0 kg/cm2	
Suitable material systems	Oil-based or water-based lithium iron phosphate, lithium cobalt oxide, lithium manganate, ternary, nickel cobalt manganese, lithium titanate, carbon graphite and related systems	
Aluminum foil substrate thickness	10-30um	Source reference labels this substrate as aluminum foil (Cu)
Aluminum foil substrate width	150-300 mm	

Parameter	TB20 Specification	Remarks
Aluminum foil maximum roll diameter	Max. 250 mm	
Aluminum foil maximum roll weight	Max. 500kg	
Copper foil substrate thickness	6-30um	Single-side bright or double-side bright acceptable
Copper foil substrate width	150-300 mm	
Copper foil maximum roll diameter	Max. 250 mm	
Copper foil maximum roll weight	Max. 500kg	
Roller-face design width	350 mm	
Guaranteed coating width	100-280mm	
Mechanical running speed	3m/min	
Coating speed	0.1-1m/min	Determined by drying condition
Suitable slurry viscosity	2000-12000 Cps	
Single-sided coating dry-thickness range	50-250μm	
Minimum intermittent length	5mm	Coating speed <=1m/min
Minimum multi-section coating length	20mm	Coating speed <=1m/min
Oil-based solvent characteristic	NMP (s.g=1.033, b.p=204°C)	
Water-based solvent characteristic	H2O/NMP (s.g=1.000, b.p=100°C)	
Cathode solids content	S.C. 60%+/-20%	
Anode solids content, PVDF system	S.C. 50%+/-10%	
Anode solids content, SBR system	S.C. 50%+/-5%	
Cathode specific gravity	1.5-2.5g/cm2	
Anode specific gravity	1-1.8g/cm2	
Coating mode	Front-and-back three-section unequal-pitch intermittent coating / automatic second-side tracking / continuous coating	
Roll-change method	Manual	
Substrate running direction	Forward coating; forward and reverse bare-foil running	
Coating thickness	10um, accuracy +/-1% dry thickness, +/-2um	
Coating length	300m	
Oven structure	Single-layer independent heating, upper and lower arrangement, arc-shaped oven	
Oven length	1.0 m per section, 3 sections total	
Oven material	Inner liner: national-standard SUS304 (1.0mm); outer liner: national-standard SUS201 (1.2mm)	Stainless steel
Oven guide-roller drive	Passive guide-roller drive	
Temperature control	Normal operating-temperature control and over-temperature monitoring/alarm protection; over-temperature condition triggers audible and visual alarm and disconnects main heating power	Each section independently controlled
Heating method	Electric heating, hot-air circulation structure	
Heating power per oven section	18KW/1m	
Oven internal temperature	Design Max 200°C; temperature difference within each oven section <=5°C	

Parameter	TB20 Specification	Remarks
Enclosure surface temperature during operation	≤45℃	
Airflow direction	Upper and lower blowing; upper and lower airflow separately controlled and fine-adjustable by valves	Upper and lower air chambers share heating element
Exhaust control per section	Independently controlled and fine-adjustable through mechanical valve	
Air-nozzle structure	Blowing direction at 30 degrees to horizontal; nozzle slot opened with dedicated mold	
Fan control	Frequency-converter control	
Heating control	Solid-state relay	
Fan material	National-standard SUS304 stainless steel	
Solvent recovery system	Not provided; installation interface assistance only	
NMP solvent concentration alarm	None	Available with separate quotation
Air-chamber pressure monitoring	None	Available with separate quotation
Exhaust air volume	10-30 cubic meters/minute	