

300Mm Small Laboratory Automatic Roll To Roll Coating Machine

Item Number: TB16



Introduction

Improve lithium battery electrode prototyping with a 300mm small laboratory automatic roll to roll coating machine featuring precision doctor blade coating hot air drying and automatic web guiding for uniform experimental electrode production in materials laboratories and pilot lines.

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Application	Description	Key Benefit
Lithium-ion battery cathode research	Coats cathode slurry onto aluminum foil for laboratory electrode-sheet preparation before cell assembly and performance testing.	Replaces manual scraping with continuous, adjustable doctor-blade coating and integrated drying.
Lithium-ion battery anode research	Applies anode slurry to copper foil in small production runs for formulation screening and electrode-process development.	Provides controlled web movement, coating accuracy, and rewind handling for repeatable sample preparation.
University battery laboratories	Supports teaching, graduate research, and pilot-scale electrode fabrication workflows that need a compact production process.	Combines coating and hot-air drying in one unit with a small installation footprint.
Battery material manufacturer laboratories	Produces coated electrode samples for evaluating slurry behavior, coating process settings, and drying conditions.	Adjustable blade gap, variable speed, and temperature control support process trials.
Advanced materials research	Processes slurry-coated metal-foil samples where a continuous single-side coating and thermal drying sequence are required.	Accommodates copper foil, aluminum foil, and other applicable base materials.
Electrode process optimization	Evaluates the effect of coating speed, doctor-blade setting, and furnace temperature on laboratory electrode preparation.	Variable-frequency drive control and PID-regulated drying enable controlled adjustment of key process conditions.
Small-batch electrode production	Produces experimental electrode sheets for R&D programs that require more throughput and consistency than hand coating.	Continuous roll-to-roll operation improves coating and drying efficiency.
Cell fabrication support	Supplies rewound, dried electrode material for subsequent cutting, pressing, assembly, and electrochemical test preparation.	Automatic take-up deviation correction helps maintain controlled winding alignment.

Parameter	Specification
Site-facing identifier	TB16
Equipment function	Laboratory small-batch production of lithium battery electrode sheets; replaces manual slurry scraping and oven drying operations
Coating speed	0.5 m/min continuously adjustable
Mechanical web speed	0-1.5 m/min
Furnace temperature	Room temperature~150°C adjustable, with hot-air circulation
Electrode sheet width	≤300 mm
Coating-roll circular runout	±0.001
Coating accuracy	≤±0.002 mm
Coating method	Doctor-blade method, continuous single side
Applicable base materials	Copper foil, aluminum foil, etc.

Parameter	Specification
Heating zone	One zone, 1.2 m
Power supply voltage	380 V three-phase power supply
Compressed air pressure	0.5 Mpa~0.7 Mpa
Compressed air flow	0.04 M3/min
Power consumption	6.5 KW
Exhaust power	60 W
Overall dimensions	Length × width × height = 1800 × 1020 × 1300
Take-up system	Automatic deviation-correction system
Deviation-correction control accuracy	±0.2 mm
Unwinding components	Unwinding roll and unwinding magnetic-powder brake
Coating components	Slurry tank, coating roll, and doctor blade
Take-up components	Take-up roll tension controller and take-up roll tension-adjustment mechanism
Drying construction	Drying box with stainless-steel heating tubes and hot-air circulation system
Drive control	Variable-frequency speed regulation; constant-torque speed-control system
Temperature control	PID regulation system
Structural configuration	Integrated structure with main drive, fan and frame, electrical section, coating, drying, unwinding, and take-up functions