Customizable Laboratory Benchtop Extrusion Flat Plate Coating Machine

Item Number: TB09

Introduction

Customizable laboratory benchtop extrusion coating machine for lithium battery electrodes, solar films, conductive polymer layers, OLED substrates, precise thickness control, uniform heating, and glovebox-compatible research.

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Application	Description	Key Benefit
Lithium Battery Electrode Research	Applies cathode or anode slurry to metallic or composite electrode substrates for laboratory cell development.	Produces controlled, repeatable coating layers while reducing slurry consumption during formulation screening.
Solid-State Battery Materials	Supports coating of functional layers and electrode-related materials where controlled thickness and clean handling are important.	Helps researchers compare material compositions under consistent coating conditions.
Solar Photovoltaic Films	Deposits functional coatings onto sheet substrates used in solar and photovoltaic research.	Provides adjustable travel speed, coating thickness, and thermal drying for process optimization.
Conductive Polymer Membranes	Applies conductive polymer formulations to flat substrates for flexible electronics and advanced membrane development.	Enables uniform film formation with enclosed feeding and stable motorized movement.
OLED Material Development	Supports surface coating of OLED-related functional materials on laboratory sheet substrates.	Offers precise small-area coating control for experimental layer development.
Advanced Materials Research	Handles experimental coatings for polymers, ceramics-related formulations, composite materials, and other functional surfaces.	Provides a versatile platform for repeatable benchtop coating trials.
Glovebox Processing	Operates inside a glovebox for materials that must be protected from oxygen or moisture during coating and drying.	Combines compact construction with vacuum fixing and controlled processing in an enclosed environment.

Parameter	Specification
Product Item Number	TB09
Coating Method	Extrusion flat plate coating machine; optional doctor blade coating, four-sided film applicator coating, and wire-bar coating processes
Standard Applicator	TB09 standard film applicator
Standard Feeding System	TB09 enclosed plunger-pump feeding system
Drive System	Motor-driven coating movement
Control System	PLC and touchscreen control
Vacuum System	One built-in oil-free vacuum pump included
Operating Environment	Suitable for glovebox use

Parameter	TB09 250 Variant	TB09 800 Variant
Coating Travel	Approximately 250mm; travel is continuously adjustable through the touchscreen	Adjustable from 0 to 800mm

Parameter	TB09 250 Variant	TB09 800 Variant
Coating Speed	0.5–20mm/s	0–120mm/s
Vacuum Plate Size	L365mm × W200mm × H32mm	L900mm × W350mm × H32mm
Weight	65KG	140KG
Overall Dimensions	L560mm × W420mm × H370mm	L1000mm × W450mm × H320mm

Parameter	Specification
Vacuum Plate	Aluminum vacuum flat plate
Applicator Thickness Adjustment	0–5mm adjustable
Syringe Type	Stainless steel injection syringe
Maximum Syringe Capacity	60ml
Feeding Speed	0.05–5mm/s, based on syringe piston speed
Coating Accuracy	±3μm
Optional Thickness Display	1μm dial indicator display available
Heating and Drying System	Large-area uniform heating system with digital temperature controller
Heating Temperature Range	Room temperature–130℃
Temperature Control Accuracy	±1℃
Power Supply	220V/50Hz

Step	Operation
1	Place the electrode sheet or other substrate on the vacuum plate, switch on the power, and activate the vacuum so the substrate is securely fixed.
2	Position the film applicator on the substrate.
3	Start the coating cycle. The motorized coating mechanism automatically drives the applicator across the substrate.
4	Remove the applicator and push rod, close the heating cover, set the drying temperature and time, and begin heating.
5	After drying is complete, open the heating cover, remove the coated substrate, and return the coating mechanism to its reset position.

Item	Recommended Practice
Cleaning Before Operation	Before each working session, carefully wipe the coating head and machine body with a soft cloth moistened with alcohol to maintain cleanliness.
Precision Component Protection	Handle the coating head, dial indicator, and other precision parts carefully. Avoid impact and place components gently during installation or removal.
Dial Indicator Adjustment	Adjust the dial indicator symmetrically and evenly on both sides.
Fastener Inspection	Regularly inspect screws, nuts, pins, and other fastening components to prevent loosening and avoid quality problems.
Coating and Feeding System Care	Disassemble and clean the applicator and feeding system as needed to maintain stable material delivery and coating performance.