Automatic Film Coating Drying Machine

Item Number: TB04

Introduction

Automatic film coating drying machine for battery electrodes and advanced materials, with vacuum fixation, adjustable coating speed, precision thickness control, and uniform heating for reliable laboratory research and repeatable high temperature thin film preparation processes and controlled development

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Application	Description	Key Benefit
Battery Electrode Film Development	Coat battery slurries onto copper foil, aluminum foil, or other suitable substrates before controlled thermal drying. The adjustable travel and speed support comparative studies of coating conditions.	Improves repeatability when evaluating electrode thickness, drying behavior, and slurry formulations.
Ceramic Thin-Film Research	Prepare ceramic slurry films for studies involving high-temperature film formation and material processing. The flat-bed format accommodates controlled laboratory-scale coating experiments.	Provides stable coating motion and uniform heating for more consistent sample preparation.
Crystal Film Preparation	Apply research materials used in crystal-related film investigations, then dry them under a defined temperature condition.	Supports controlled development of film morphology and process parameters.
Specialized Nano-Film Research	Produce small-batch nano-material films where coating gap, speed, substrate flatness, and drying conditions must be carefully controlled.	Enables fine process adjustment for sensitive experimental formulations.
Glove-Box Processing	Operate the compact unit inside a glove box when materials require controlled-atmosphere handling during coating and drying.	Reduces transfer exposure and preserves a more controlled research workflow.
Academic Materials Science	Support repeatable laboratory demonstrations and research in thin-film coating, slurry processing, and thermal drying.	Combines automated motion, touchscreen control, and compact installation in one accessible platform.
Advanced Materials Process Screening	Compare coating speeds, applicator settings, and drying temperatures during early-stage process development for new materials.	Accelerates parameter screening while maintaining consistent sample preparation conditions.

Parameter	TB04-150 Configuration	TB04-300 Configuration
Coating method	Flat-bed coating; standard 100 mm film applicator; coating width 100 mm, expandable; optional coating rod and other metering devices for manual doctor-blade coating	Flat-bed coating; standard 250 mm film applicator, available with or without slurry retaining plates; coating width 250 mm, expandable; optional coating rod and other metering devices for manual doctor-blade coating
Coating stroke	Approximately 250 mm; stroke continuously set and adjusted through the touchscreen	Approximately 300 mm; stroke continuously set and adjusted through the touchscreen
Coating drive	Motor-driven; coating speed continuously set and adjusted through the touchscreen	Motor-driven; coating speed continuously set and adjusted through the touchscreen
Coating speed	0-120 mm/s, such as for lithium iron phosphate slurry	0-120 mm/s, such as for lithium iron phosphate slurry
Vacuum plate	Vacuum aluminum flat plate	Vacuum aluminum flat plate
Vacuum plate dimensions	L365 mm x W200 mm x H32 mm	L415 mm x W300 mm x H32 mm
Adjustable applicator thickness range	0-6 mm	0-6 mm
Coating accuracy	+/-3 um; optional 1 um dial indicator display	+/-3 um; optional 1 um dial indicator display

Parameter	TB04-150 Configuration	TB04-300 Configuration
Heating and drying system	Room temperature to 130 C; digital temperature controller; accuracy +/-1 C	Room temperature to 130 C; digital temperature controller; accuracy +/-1 C
Power supply	220 V/50 Hz	220 V/50 Hz
Weight	50 kg	70 kg
External dimensions	L560 mm x W420 mm x H370 mm	L550 mm x W450 mm x H320 mm
Vacuum pump	One oil-free vacuum pump included and built in	One oil-free vacuum pump included and built in