Semi Automatic Pouch Cell Electrode Sheet Die Cutting Machine

Item Number: MQ03

Introduction

Semi-automatic pouch cell electrode die cutting machine with infrared positioning, adjustable 3T or 5T force, +/-0.1 mm precision, 800-2000 pieces per hour, clean edges, and safe light curtain protection for reliable battery research and scalable laboratory production workflows.

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Application	Description	Key Benefit
Pouch Cell Electrode Prototyping	Cuts cathode and anode sheets into repeatable pouch-cell formats during early-stage battery development.	Supports consistent electrode dimensions and faster iteration between cell designs.
Lithium-Ion Battery Cell Assembly	Prepares electrode pieces before stacking, alignment, tab positioning, and pouch-cell assembly.	Reduces edge defects that could interfere with downstream cell assembly.
Battery R&D Laboratories	Provides repeatable sample preparation for researchers evaluating electrode materials, loading levels, and cell configurations.	Offers higher throughput than manual cutting while retaining operator flexibility.
Pilot-Scale Cell Fabrication	Processes small batches of electrode sheets for process validation and pre-production trials.	Bridges the operational gap between hand tools and fully automatic production equipment.
Advanced Materials Research	Cuts experimental sheet materials and coated samples into controlled test geometries.	Enables efficient preparation of multiple samples for comparative testing.
University and Academic Research	Supports teaching laboratories and research groups conducting battery fabrication or materials-processing experiments.	Combines compact dimensions, straightforward operation, and practical safety protection.
Custom Electrode Formats	Handles project-specific cutting dimensions when customers require formats beyond the standard working sizes.	Provides a customizable preparation platform for specialized cell designs.

Parameter	MQ03 280 mm Variant	MQ03 320 mm Variant
Maximum cutting size	280 including tab x 180 mm; customizable according to customer requirements	320 including tab x 240 mm; customizable according to customer requirements
Booster cylinder	3T	5T
External dimensions	L580 x W455 x H900 mm	L700 x W440 x H970 mm
Equipment weight	170 kg	220 kg

Parameter	Specification
Vertical burr	<=15 um
Horizontal burr	<=20 um
Die service life under normal use	>=30,000 operations
Cutting accuracy	+/-0.1 mm

Parameter	Specification
Die-cutting stroke	150 mm
Capacity	800-2000 EA/H; sheet-material die-cutting efficiency is slightly lower
Power supply	220 V/50 Hz
Power	100 W
Compressed air	0.5 MPa-0.8 MPa
Cutting-force and speed adjustment	Gas-liquid booster cylinder drive; cutting force and cutting speed are adjustable
Standard cutting quantity	2 pieces per cycle
Cutting quantity range	1-8 pieces per cycle, depending on electrode size
Positioning system	Infrared positioning device
Feed protection	Safety light curtain at the equipment feed opening
Main mechanical assemblies	Feed guide section, upper die assembly, lower template assembly, drive section, guide section, external cover and frame, base section, and discharge section
Electrical and standard components	Electrical control components, booster cylinder, pneumatic components, bearings and motion components, and safety light curtain
Electrical control components	Omron / Chint or equivalent
Booster cylinder supplier	Taiwan Jiuli / Xintuo or equivalent
Pneumatic components	SMC / Taiwan Airtac
Bearing and motion components	NSK / Taiwan Baolong
Safety light curtain	SUNX or equivalent
Operating method	Place the electrode sheet at the die-cutting position, press the foot valve, allow the booster cylinder to drive the die set downward, and remove the finished electrode after cutting
Routine cleaning	Regularly wipe the die-cutting plate and guide components to keep them clean
Lubrication	Apply lubricant to the linear-motion areas of the ball guide columns and guide bushings to maintain smooth movement
Long-term storage	When the equipment will remain unused for an extended period, wipe moving-component surfaces clean and apply rust-preventive oil
Fastener inspection	Periodically inspect screws, nuts, pins, and other fasteners to prevent loosening and reduce the risk of equipment or personal safety incidents
Operating safety	Do not place hands or other body parts in the die, ball guide column and bushing movement areas, or other hazardous zones during operation
Multi-person operation	Operation by two or more people at the same time is prohibited to prevent unintended injury
Service restrictions	Unqualified personnel and unauthorized personnel must not disassemble or adjust the equipment
Electrical service restriction	Circuit components must not be disassembled without authorization