

Automatic In Line Prismatic Battery Electrolyte Filling Machine For Pilot Line

Item Number: JZ12



Introduction

Designed for battery pilot lines, this automatic in-line prismatic cell electrolyte filling machine provides $\pm 3\%$ quantitative dosing accuracy, high-vacuum soaking cycles, and multi-channel throughput to maximize wettability, pass rates, and cell reliability across demanding research and small-batch production runs.

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Application	Description	Key Benefit
Prismatic Lithium-Ion Pilot Production	Precision electrolyte injection for aluminum-shell NCM, NCA, and LFP power cells in pilot manufacturing.	Ensures thorough electrode wetting and achieves a $\geq 99\%$ qualified first-pass production yield.
Commercial Energy Storage Cell Prototyping	Electrolyte filling for high-capacity prismatic cells used in grid-scale energy storage system (ESS) modules.	Accelerates electrolyte absorption into dense, thick electrode layers via programmable vacuum-nitrogen cycling.
Sodium-Ion Battery Development	Small-batch electrolyte dispensing for emerging sodium-ion chemistry cells requiring specialized salt formulations.	Delivers precise volumetric dosing without cross-contamination or chemical degradation of specialized electrolytes.
Automotive EV Battery Cell Qualification	Pre-production validation and batch assembly of heavy-duty aluminum-cased traction battery cells.	Provides tight cell-to-cell consistency ($\pm 3\%$) essential for matching cell capacities across vehicle battery packs.
Advanced Battery Chemistry Research	High-throughput electrolyte testing and wetting optimization in university, government, and corporate R&D centers.	Enables flexible parameter configuration for pressure, soak times, and cycle counts on a standardized platform.
Custom Prismatic Cell Manufacturing	Electrolyte filling for non-standard, custom-dimension prismatic cells using tailored top-cover fixturing plates.	Facilitates fast tooling changeovers to support versatile product development and diverse client specifications.

Specification Parameter	System Value / Requirement
Model Identifier	JZ12
Equipment Classification	In-Line Prismatic Aluminum-Shell Battery Electrolyte Filling Machine
Batch Processing Capacity	12 Cells per Fixture Cycle (12 PCS / batch)
Standard Cell Dimensions	207 mm (H) x 135 mm (W) x 29 mm (T) (Customizable per top-cover drawing)
Electrolyte Baseline Weight	~300 g per cell (Adjustable based on cell capacity)
Injection Dosing Accuracy	$\pm 3\%$ ($\pm 0.3\%$ per head across 20-sample verification)
First-Pass Yield Rate	$\geq 99\%$ (Evaluated against $\pm 3\%$ tolerance standards)
Maximum Operating Efficiency	1 PPM (Fixture cycle/min; dependent on cell size, capacity, and electrolyte volume)
Operational Availability (Uptime)	$\geq 95\%$ (Continuous 24-hour production baseline)
Process Cycle Sequence	Manual Load → Auto Clamp → Vacuum Extraction → Liquid Fill → N2 Purge/Soak → Manual Unload
Configurable Parameters	Vacuum depth, vacuum holding time, nitrogen pressure, soak time, cycle repetitions
Vacuum Source Specification	Vacuum degree -0.095 MPa
Pneumatic / Air Requirements	0.4 to 0.6 MPa (Air flow rate: 100 L/min)

Specification Parameter	System Value / Requirement
Inert Gas (Nitrogen) Supply	Configured according to customer process and chemistry requirements
Electrical Power Rating	AC 220V, Single Phase, 50/60 Hz
Total Power Consumption	1.5 kW
System Net Weight	Approximately 0.8 Metric Tons (~800 kg)
Overall Machine Dimensions (L x W x H)	1400 mm x 800 mm x 1900 mm
Structural Finish & Appearance	Sheet metal in off-white / light grey; structural frame in industrial blue