Vacuum Electrolyte Filling Standing And Pre Sealing All In One Machine For Pouch Cell And Supercapacitor Assembly

Item Number: JZ13

Introduction

Discover our integrated vacuum electrolyte filling standing and pre sealing all in one machine designed for precision pouch cell and supercapacitor assembly delivering accurate dosage controlled diffusion and uniform thermal sealing under strict dry room conditions.

Learn More

Application	Description	Key Benefit
Lithium-Ion Pouch Cell R&D	Precision vacuum filling and edge pre-sealing of prototype lithium-ion and solid-state pouch cells.	Eliminates interfacial void formation and guarantees uniform electrolyte wetting across multi-layer electrode stacks.
Supercapacitor Fabrication	Electrolyte injection, vacuum impregnation, and hermetic pre-sealing for electric double-layer capacitors (EDLCs).	Rapidly saturates high-surface-area activated carbon electrodes without damaging delicate microporous separator films.
Pilot-Scale Battery Assembly	Small-to-medium batch manufacturing of specialized pouch cells for consumer electronics, medical, and aerospace devices.	Integrates three critical assembly operations into a single station, reducing labor overhead and production cycle times.
Novel Electrolyte Formulation Testing	Quantitative dispensing of advanced high-voltage liquid, gel, ionic liquid, and functionalized additive electrolytes.	Delivers ±1% volumetric repeatability with chemical-resistant wetted parts, preventing contamination and fluid degradation.
Sodium-Ion & Alternative Chemistries	Controlled vacuum wetting and pre-encapsulation of emerging sodium-ion, zinc-ion, and lithium-sulfur pouch prototypes.	Prevents exposure to ambient moisture and oxygen when operated inside inert gas glovebox chambers.
Post-Filling Vacuum Degassing Studies	Extended vacuum standing and cyclic diffusion optimization for high-density, thick-calendered battery electrodes.	Accelerates electrolyte diffusion pathways while providing direct visual verification through the integrated observation window.

Specification Parameter	Value / Range (JZ13)
Base Model Number	JZ13
Core Functional Integration	Vacuum Filling, Vacuum Standing (Diffusion), Thermal Pre-Sealing
Applicable Cell Dimensions	Length: 20–190 mm; Width: 20–190 mm; Thickness: 0–15 mm
Volumetric Dosing Range	0.2 ml – 3 L (Configurable via metering pump)
Mass Dosing Capacity	0.2 g – 3 kg (Configurable via metering pump)
Electrolyte Injection Accuracy	±1%
Dispensing Discharge Speed	Up to 6 ml/s (Continuously adjustable)
Inlet / Outlet Fluid Porting	Φ6 mm chemical-resistant tubing interface
Sealing Head Operating Temperature	Ambient to 250°C (Digital adjustable)
Temperature Control Precision	±2°C
Thermal Sealing Pressure Range	0 – 5 kg/cm² (Continuously adjustable via regulator)
Thermal Sealing Dwell Time	0 – 99 seconds (Digitally adjustable)
Standard Sealing Edge Width	5 ± 0.4 mm (Customizable upon request)

Specification Parameter	Value / Range (JZ13)
Maximum Sealing Length	190 mm
Sealing Blade Total Length	200 mm
Sealing Thickness Parallelism	Sealing thickness variance between any two points < 15 μm
Structural Materials (Wetted / Critical)	SUS304 and SUS316 Stainless Steel
Vacuum Chamber Construction	Welded heavy-gauge aluminum alloy, corrosion-resistant treated
Sealing Jaw Material	High thermal conductivity copper alloy
Drive Mechanism	Pneumatic cylinder with dual precision linear guide bushings
Control Architecture	Microprocessor PLC with color touchscreen HMI
Heating Element Rating	300 W heating cartridge (Peak heating power approx. 0.6 kW)
Total Power Supply Requirements	AC 220V, 50 Hz, Single Phase, 1.0 kW maximum
Overall Equipment Dimensions	L600 mm × W620 mm × H800 mm
Total System Weight	95 kg