

Battery Separator Air Permeability Tester Gurley Densitometer

Item Number: DS09



Introduction

Discover high precision lithium battery separator air permeability testing with automated Gurley densitometer equipment delivering exact differential pressure control ultra fine timing resolution and repeatable quality assurance measurements for advanced membrane research and manufacturing lines.

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Application	Description	Key Benefit
Lithium-Ion Battery Separator QA/QC	Verifying the Gurley air permeability of wet-process (PE) and dry-process (PP) microporous membranes during continuous roll manufacturing.	Ensures uniform pore distribution, reduces internal resistance variation, and prevents thermal runaway risks in finished cells.
Ceramic-Coated Separator Development	Evaluating the gas permeability changes before and after applying single- or double-sided sub-micron ceramic and polymer functional coatings.	Optimizes coating thickness and binder ratio without compromising electrolyte uptake and ionic transport efficiency.
Solid-State & Hybrid Electrolyte Matrices	Measuring gas diffusion resistance in porous polymer scaffolds and fibrous nonwoven support matrices used in semi-solid or solid-state batteries.	Validates matrix interconnectivity to ensure homogeneous liquid or gel electrolyte absorption across the solid electrolyte framework.
Supercapacitor Porous Separators	Analyzing low-resistance, high-flow cellulose and synthetic membrane separators designed for ultra-high-rate electrical double-layer capacitors (EDLC).	Guarantees minimal equivalent series resistance (ESR) while verifying mechanical boundary separation between electrodes.
Technical Paper & Filter Media Testing	Characterizing specialized industrial filter papers, gas diffusion layers (GDL), and barrier packaging materials requiring calibrated airflow resistance.	Delivers dual-unit reporting in s/100ml and $\mu\text{m}/(\text{Pa}\cdot\text{s})$ for accurate filtration efficiency and pore blocking analysis.
Fuel Cell Gas Diffusion Layer Research	Characterizing the through-plane gas permeability of carbon paper and carbon cloth substrates used in proton exchange membrane fuel cells (PEMFC).	Accelerates transport layer optimization to prevent mass transport losses during high current density fuel cell operation.

Parameter	Specification (DS09)
Item Number	DS09
Measurement Principle	Gurley Air Permeability Method
Time Measurement Range	30 - 10,000 s / 100 ml
Paper Measurement Range	0.1 - 2.5 μm / (Pa·s)
Timing Resolution	0.01 s
Differential Pressure Range	0 - 3 kPa (custom ranges optional)
Differential Pressure Accuracy	± 0.01 kPa
Standard Test Differential Pressure	1.21 kPa
Test Aperture Diameter	$\varnothing$ 9.05 mm
Effective Test Area	6.45 cm^2
Minimum Sample Dimensions	≥ 15 mm $\times$ 15 mm
Specimen Conditioning Temperature	23 $\pm$ 2 $^{\circ}\text{C}$ (GB/T 2918-1998 compliant)
Specimen Conditioning Relative Humidity	50 $\pm$ 10 % RH (GB/T 2918-1998 compliant)

Parameter	Specification (DS09)
Specimen Conditioning Duration	≥ 4 hours
Standard Testing Environment Temperature	23 ± 2 °C
Standard Testing Environment Humidity	50 ± 10 % RH
Supply Voltage & Frequency	220 V AC, 50 Hz
Power Consumption	100 W
Instrument Dimensions (W × D × H)	400 mm × 350 mm × 480 mm
Instrument Net Weight	28 kg