Customizable Width Aluminum Mesh Nickel Mesh Copper Mesh Lithium Battery Cathode And Anode Current Collectors

Item Number: FZ24

Introduction

Discover high-purity customizable width aluminum mesh nickel mesh and copper mesh current collectors engineered for advanced lithium battery cathode and anode electrode assemblies delivering exceptional conductivity slurry adhesion and electrochemical stability.

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Application	Description	Key Benefit
Lithium-Ion Cathode Fabrication	Applied as a 3D substrate for thick-loading LFP, NMC, and LCO active cathode material coatings.	Enhances slurry retention, reduces interfacial contact resistance, and prevents active layer delamination under high C-rates.
Anode Substrate for High-Capacity Alloys	Utilized with silicon-dominant and lithium metal anode formulations requiring volumetric expansion buffering.	3D mechanical open matrix accommodates active material breathing, suppressing electrode pulverization and capacity fade.
Solid-State Battery Interfaces	Embedded within composite solid electrolyte layers and high-voltage composite cathode structures.	Provides continuous electronic pathways while acting as a compliant reinforcement skeleton across rigid ceramic-polymer matrices.
Supercapacitor Electrode Assemblies	Integrated as current collecting scaffolds for activated carbon, graphene, and pseudocapacitive metal oxide slurries.	Maximizes surface contact area and facilitates rapid ion diffusion throughout deep porous electrode architectures.
Alkaline Battery & Water Electrolysis	Employed in high-corrosion alkaline fuel cells, Ni-MH cells, and electrocatalytic hydrogen generation electrodes using nickel mesh.	Exceptional chemical resistance to caustic electrolytes combined with high specific surface area for electrocatalytic activity.
Flow Battery Current Distributors	Installed within redox flow battery stack flow frames and bipolar plate electrode junctions.	Uniform fluid permeability paired with high lateral electrical conductivity for minimized localized overpotentials.
Pilot-Scale Roll-to-Roll Prototyping	Mounted on continuous slot-die, doctor-blade, or dip-coating web lines for customized pouch and cylindrical cell pilot runs.	Tailored slitting widths and high mechanical tensile strength prevent web breakage and edge tearing under dynamic tension.

Specification Parameter	FZ24-AL (Aluminum Mesh)	FZ24-NI (Nickel Mesh)	FZ24-CU (Copper Mesh)
Base Metal Composition	Aluminum (Al)	Nickel (Ni)	Copper (Cu)
Metallurgical Purity	≥ 99.9%	≥ 99.6%	≥ 99.9%
Standard Thickness	50 µm (0.050 mm)	0.14 mm (140 µm)	50 µm / 55 µm
Standard Roll Width	200 mm	1000 mm	200 mm
Customization Options	Width slit to specification	Width slit to specification	Width slit to specification
Standard Roll Length	10 meters	10 meters	10 meters (customizable)
Mesh Count / Aperture Pattern	Expanded Open Mesh	100 Mesh	Woven / Micro-Porous Mesh
Pore Size / Aperture Dimensions	0.8 mm × 1.5 mm	0.18 mm (Pore Size)	1.0 mm (Aperture Diameter)
Bulk Density	2.70 g/cm³	8.90 g/cm³	8.96 g/cm³
Areal Surface Density	80 ± 15 g/m²	Reference standard web weight	Reference standard web weight
Primary Cell Application	Positive Electrode (Cathode)	Specialty Electrodes & Bipolar	Negative Electrode (Anode)