Graphite Plate Membrane Electrode Reaction Cell Serpentine Spe Reactor For Fuel Cell And Electrochemical Synthesis

Item Number: PL-DJ34

Introduction

High performance graphite plate membrane electrode reaction cell with serpentine flow channels and titanium endplates designed for fuel cell testing catalyst evaluation organic electrosynthesis and advanced electrochemical wastewater treatment applications under demanding laboratory and industrial testing research environments worldwide

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Application	Description	Key Benefit
PEM Fuel Cell Testing	Characterization of catalyst-coated membranes (CCMs) and gas diffusion electrodes under controlled temperature and gas flow conditions.	Minimizes electrical contact resistance and ensures uniform gas distribution, yielding highly accurate polarization curves.
Electrocatalyst Screening	Long-term durability and activity evaluations for oxygen reduction (ORR) and hydrogen evolution (HER) catalysts.	High-purity graphite and titanium eliminate metallic contamination, ensuring true catalytic performance is measured.
Organic Electrosynthesis	Conducting selective electrochemical oxidation or reduction of organic substrates in zero-gap or narrow-gap configurations.	Outstanding chemical resistance to organic solvents and aggressive reagents combined with uniform reactant mass transport.
Electrochemical Wastewater Treatment	Anodic oxidation and destruction of refractory organic pollutants, ammonia nitrogen, or industrial dyes in aqueous solutions.	Corrosion-resistant titanium and ultra-pure graphite withstand highly oxidative potentials and aggressive effluent matrices.
PEM Water Electrolysis	High-efficiency water splitting to generate green hydrogen and oxygen at high current densities.	High mechanical stability allows cell operation under elevated hydraulic pressures without risk of leakage or structural failure.
Carbon Dioxide Reduction (CO2RR)	Converting gaseous carbon dioxide into valuable chemical feedstocks or fuels at gas-liquid-solid interfaces.	Serpentine channels prevent liquid product accumulation, maintaining continuous gas access to the catalytic active sites.

Specification Parameter	Technical Detail / Value (PL-DJ34)
Model Number	PL-DJ34
Protective End Plate Material	High-Purity Titanium (□□□□□□□□)
Current Collector / Flow Plate Material	Imported Ultra-Pure Isostatic Graphite (Grade 520) (□□□□□ □□ 520)
Flow Field Configuration	Serpentine Flow Channel (□□□)
Thermal Management	Integrated Heating Supported (□□)
Single Plate Dimensions	90 mm × 90 mm × 15 mm
Active Flow Channel Area	50 mm × 50 mm (25 cm²)
Chemical Compatibility	High resistance to strong acids, strong bases, and organic solvents
Mechanical Clamping Interface	Multi-bolt compression layout for highly uniform pressure distribution