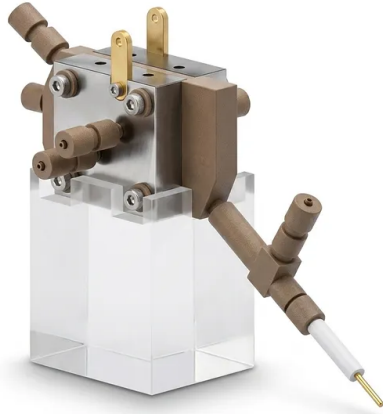


Multi Functional Gas Diffusion Electrochemical Cell For Co2 Reduction And Solid State Membrane Electrode Assembly Electrolysis

Item Number: PL-DJ31



Introduction

Optimize your advanced multi functional gas diffusion electrochemical cell featuring high purity PEEK and titanium components for seamless transitions between gas diffusion solid state electrolyte and membrane electrode assembly testing configurations to maximize experimental versatility and data accuracy today

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Application	Description	Key Benefit
Carbon Dioxide (CO2) Electroreduction	Assessing gas diffusion electrode (GDE) performance during high-rate conversion of CO2 into gaseous products like carbon monoxide (CO) or ethylene (C2H4).	Minimizes mass transfer limitations, enabling high current density testing up to industrial-scale flow rates.
Pure Liquid Fuel Synthesis	Using the solid-state electrolyte (SSE) configuration to generate pure liquid products like formic acid or acetic acid directly from CO2.	Eliminates the need for downstream liquid product separation, providing clean, salt-free liquid fuel samples.
Zero-Gap MEA Evaluation	Running tests in the Membrane Electrode Assembly (MEA) mode to simulate commercial zero-gap electrolyzer environments.	Reduces ohmic resistance and high polarization losses to maximize power conversion efficiency and durability.
Electrocatalyst Degradation Studies	Performing long-term potential cycling on custom-coated catalysts in highly acidic or alkaline media.	Exceptional corrosion resistance of titanium and PEEK ensures zero background metal contamination over hundreds of operating hours.
Gas Diffusion Layer (GDL) Optimization	Characterizing different GDL hydrophobicities and micro-porous layer thicknesses under precise compression pressures.	Stacked sealing architecture guarantees uniform pressure distribution across the active area for reproducible compression testing.

Parameter	Specifications for PL-DJ31 System
Active Area Channel Dimensions	10 mm x 10 mm
External Dimensions (Envelope)	50 mm x 50 mm
Electrode Spacing (GDE Configuration)	1.6 mm
Center Chamber Thickness (Module B)	1.2 mm
Flow Field Design	Serpentine flow channels
Sealing Mechanism	Stacked compression sealing
Standard Structural Material	High-Purity Polyetheretherketone (PEEK)

Component Identifier	Component Description	Material Construction
PL-DJ31-A	Flow Field Plate A (with serpentine channels)	High-Purity Titanium

Component Identifier	Component Description	Material Construction
PL-DJ31-B	Center Chamber Spacer (I-shaped frame structure)	High-Purity PEEK (1.2 mm thick central section)
PL-DJ31-C	Flow Field Plate C (with serpentine channels)	High-Purity Titanium (Standard) / High-Purity Nickel (Optional Upgrade)
PL-DJ31-D	Reference Electrode Port Assembly	High-Purity PEEK & Titanium Integrated Piping