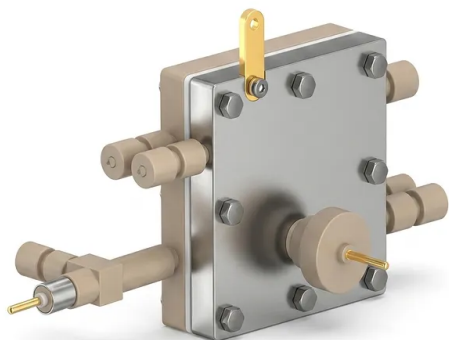


High Performance Membrane Electrode Assembly Gas Diffusion Electrochemical Cell For Co2 Reduction And Energy Research

Item Number: PL-DJ37



Introduction

Optimize your electrochemical synthesis and carbon dioxide reduction experiments with this advanced gas diffusion cell featuring a serpentine flow field, high-purity titanium plates, and an ultra-short 0.4mm electrode gap designed to deliver maximum reaction efficiency and low internal electrical resistance.

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Application	Description	Key Benefit
Carbon Dioxide (CO2) Reduction	Electrochemical conversion of gaseous CO2 into green chemical feedstocks such as carbon monoxide, formic acid, ethylene, and ethanol.	High mass transport of gaseous CO2 to the catalyst layer prevents mass-transfer limitations and yields high Faradaic efficiency at high current densities.
Hydrogen Fuel Cell Development	Testing and characterizing gas diffusion electrodes and proton exchange membrane (PEM) assemblies under controlled flow conditions.	Serpentine gas flow mimics real-world fuel cell environments, allowing accurate evaluation of catalyst activity and liquid byproduct water management.
Green Hydrogen Production (HER/OER)	Evaluating active electrocatalysts for the Hydrogen Evolution Reaction and Oxygen Evolution Reaction in alkaline or acidic media.	Minimal electrode spacing (0.4mm) significantly reduces ohmic cell resistance, allowing accurate high-current benchmarking of water electrolysis.
Nitrogen Reduction Reaction (NRR)	Ambient-temperature electrochemical synthesis of ammonia from nitrogen gas and aqueous electrolytes.	Uniform gas distribution across the high-purity titanium plate ensures maximum contact of inert N2 with the active catalyst sites, improving synthesis rates.
Electrosynthesis of Fine Chemicals	Conducting gas-involving organic electrosynthesis, including selective oxidations and hydrogenations of organic feedstocks.	Excellent chemical resistance of the fluoropolymer body allows the safe use of aggressive organic solvents and corrosive co-catalysts.
Catalyst Material Degradation Studies	Long-term durability and stability testing of electrocatalysts under continuous gas flow and high potential cycling.	Titanium flow plates and inert housing prevent cell corrosion products from interfering with or artificially stabilizing the catalyst under study.

Parameter	Specification Details (Model: PL-DJ37)
Product Item Number	PL-DJ37
Plate Material	High-Purity Titanium (Grade 2 / ASTM B265 standard equivalent)
Flow Field Configuration	Serpentine Flow Channel (Default); Custom configurations available upon request
Electrode Spacing (WE to CE)	0.4 mm
Standard Active Reaction Areas	10 mm × 10 mm 20 mm × 20 mm 30 mm × 30 mm (Alternative custom sizes available upon request)
Working Electrode (WE)	Gas Diffusion Electrode (GDE) (User-provided / Self-prepared)
Reference Electrode (RE)	Silver/Silver Chloride (Ag/AgCl) Electrode (Standard package included)
Counter Electrode (CE)	Iridium Oxide (IrO2) Mesh, Platinum Mesh, or other porous materials (User-provided / Self-prepared)
Enclosure Housing Material	Ultra-high purity PTFE / PFA Fluoropolymer (precision CNC-machined)
Seal Gasket Material	High-performance fluoropolymer/silicone gaskets (acid, alkali, and solvent resistant)

Parameter	Specification Details (Model: PL-DJ37)
Maximum Operating Temperature	120°C (limited by sealing material and reference electrode stability)
Electrical Connectors	Gold-plated copper terminal pins for optimal electrical contact and low resistance