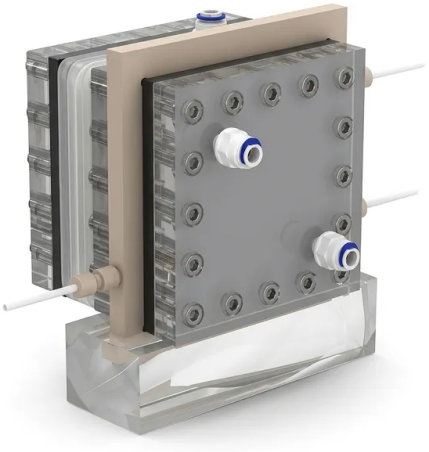
Capacitive Deionization Device Cdi Cell For Electrosorption Water Desalination And Purification Research

Item Number: PL-DJ41



Introduction

Optimize your electrosorption research with this premium capacitive deionization device featuring ultra pure isostatic graphite current collectors, durable PEEK insulating frames, and a serpentine flow channel for high efficiency water purification and low voltage desalination testing applications.

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Application	Description	Key Benefit
Electrode Material Screening	Quantitative evaluation of novel carbon materials such as graphene, carbon nanotubes, activated carbon fibers, and MXenes for electrosorption capacity.	High-accuracy measurement of salt adsorption capacity, specific capacitance, and long-term cycle stability under dynamic flow.
Brackish Water Desalination	Testing low-voltage demineralization configurations to optimize desalination rates and energy-to-water efficiency curves for municipal and industrial processes.	Delivers clean water with minimized energy input, avoiding the heavy osmotic pressures and mechanical energy losses of membrane processes.
Selective Heavy Metal Recovery	Extraction and recovery of targeted heavy metals like copper, lead, nickel, and chromium from complex industrial wastewater matrices.	Highly adjustable electrical controls allow selective electrosorption and concentration of toxic or high-value ionic species.
Competitive Co-Ion Studies	Investigating the selective adsorption kinetics and transport differences of multi-component mixtures containing calcium, magnesium, sodium, chloride, and sulfate.	Accurate control of flow paths and electrical fields facilitates precise study of preferential ion-adsorption phenomena.
Energy Recovery Analysis	Researching charge-discharge cycles to capture and reuse electrical energy generated during the electrode regeneration/desorption step.	Highly conductive graphite current collectors minimize internal electrical losses, improving overall thermodynamic efficiency calculations.
Wastewater Polishing	Tertiary treatment testing of municipal effluents to eliminate traces of ionic pollutants, fertilizers, and dissolved salts prior to environmental discharge.	Extremely robust frame and chemical-resistant materials prevent degradation from organic fouling, ensuring consistent long-term data collection.

Specification Parameter	Technical Detail / Value	Material & Structural Design Notes
Product Item Number	PL-DJ41	Standard catalog identifier for ordering and customization
Core Technology	Capacitive Deionization (CDI) / Electrosorption	Based on electric double-layer capacitor (EDL) theory
Protective Plate Material	PMMA (Polymethyl Methacrylate)	Used for left and right outer structural support; highly transparent
Current Collector Material	Imported Ultra-Pure Isostatic Graphite (Grade 520)	High density, excellent conductivity, low electrical resistance
Flow Channel Configuration	Serpentine (Snake-like) Channel	Machined directly on the face of the graphite collector plates
Current Collector Plate Dimensions	115 mm × 120 mm × 10 mm	Precision tolerance alignment for tight internal seal
Flow Channel Active Dimensions	50 mm × 50 mm × 2 mm	Optimized flow distribution and contact area
Insulating Frame Material	PEEK (Polyetheretherketone)	High mechanical strength, excellent dielectric properties
PEEK Frame Dimensions	140 mm × 140 mm × 10 mm	Outer boundary insulation and structural alignment frame
Anode-to-Cathode Distance	< 3 mm	Extremely narrow gap to minimize fluid resistance and voltage drop
Typical Operating Voltage	Low voltage (typically 0.8 V to 1.5 V)	Safe, low-energy electrochemical operational parameters