

Electrochemical Electrolytic Cell For Laboratory Research And Testing

Item Number: KT-DJ



Introduction

Engineered for precision electrochemical analysis this high performance electrolytic cell delivers superior chemical resistance leak tight modular sealing and versatile electrode configurations empowering researchers across battery development corrosion testing water treatment evaluation and electrocatalytic synthesis worldwide for demanding applications

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Application	Description	Key Benefit
Electrocatalyst Screening (HER/OER/ORR)	Evaluation of advanced water-splitting catalysts and oxygen reduction reaction kinetics in acidic or alkaline media using gas-purged three-electrode assemblies.	Delivers negligible ohmic drop and ultra-low background noise for accurate kinetic overpotential and Tafel slope measurements.
Battery & Energy Storage R&D	Characterization of next-generation lithium, sodium, and zinc battery electrolyte formulations, solid-electrolyte interphase (SEI) growth, and charge-discharge dynamics.	Hermetic sealing prevents electrolyte volatilization and moisture ingress, preserving ultra-dry conditions for air-sensitive chemistries.
Accelerated Corrosion & Passivation Testing	Potentiodynamic polarization and EIS analysis of structural metals, coatings, and marine alloys exposed to simulated saline or industrial chemical environments.	Rigid Luggin capillary positioning guarantees reproducible polarization curves and precise determination of pitting and breakdown potentials.
Carbon Dioxide (CO2) Electroreduction	Selective reduction of carbon dioxide into synthetic fuels and chemical feedstocks using divided cell architectures under controlled gas flow conditions.	Divided cell configuration with selective membrane clamping eliminates anolyte oxidation of cathode-generated organic reaction products.
Electroorganic Synthesis & Electrosynthesis	Controlled-potential organic functional group transformations, radical couplings, and paired electrosynthetic processing at bench scale.	Multi-port architecture accommodates high-surface-area working electrodes and continuous reagent dosing without breaking chamber atmosphere.
Biosensing & Environmental Electroanalysis	Trace-level detection of heavy metal ions, pesticide residues, and biochemical biomarkers using strip-plate, disc, or microelectrode assemblies.	Optical-grade vessel walls paired with inert PTFE caps yield minimal chemical leaching and zero analyte adsorption on cell surfaces.
Photochemical & Photoelectrochemical Cells	Sunlight-driven water splitting and solar fuel generation coupling semiconductor photoanodes with optical quartz windows.	High-transmission quartz transmission planes maximize incident photon efficiency while providing stable spatial alignment.

Parameter Category	Specification Details (Model Series KT-DJ)
Base Model Series Identifier	KT-DJ
Cell Body Construction Materials	Annealed Schott Borosilicate 3.3 Glass / High-Purity Synthetic Quartz (JGS1)
Cap & Internal Component Materials	Virgin PTFE / Medical-Grade PEEK / 316L Stainless Steel (Optional)
Standard Nominal Chamber Volumes	10 mL, 25 mL, 50 mL, 100 mL, 150 mL, 250 mL, 500 mL (Custom options up to 2000 mL)
Cell Architecture Configurations	Single-Chamber Undivided, H-Type Divided (Membrane Clamped), Jacketed Thermostatic, Optical In-Situ
Separation Diaphragm Options (Divided)	Ion-Exchange Membrane (Nafion/Anion), Sintered Glass Frit (Porosity G1 to G4), PEEK Micro-Mesh
Operating Temperature Range	-20°C to +150°C (Standard Borosilicate/PTFE); -40°C to +250°C (Quartz/PEEK)

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Temperature Uniformity (Jacketed)	±0.1°C across working zone via recirculating bath coupling
Hermetic Sealing Pressure Rating	Up to 0.2 MPa (2 bar) positive pressure; Full vacuum down to 10 ⁻² mbar
Standard Sealing O-Ring Formulations	Fluorocarbon Elastomer (Viton) Standard; Perfluoroelastomer (FFKM) Optional
Port Geometry & Joint Standards	Ground Joints (10/19, 14/20, 19/22, 24/29) and Adjustable M9/M14/M16 Threaded PEEK Bushings
Standard Port Allocation	Working Electrode (1x), Counter Electrode (1x), Reference Luggin Well (1x), Gas In/Out (2x), Temperature Well (1x)
Reference Well Capillary Outer Diameter	1.0 mm to 3.0 mm adjustable fine-tip Luggin-Haber capillary with ceramic/porous core
Optical Quartz Window Transmission	≥ 92% transmission across 200 nm – 2500 nm UV-Vis-NIR spectral range
Chemical Compatibility	Concentrated acids (HCl, H ₂ SO ₄ , HNO ₃), alkaline solutions (KOH, NaOH), organic solvents (acetonitrile, DMF, DMSO, PC)