Rechargeable Zinc Air Electrolytic Cell Metal Fuel Cell Reactor Transparent Zinc Air Test Device

Item Number: BE05

Introduction

Transparent rechargeable zinc air electrolytic cell reactor for metal fuel cell research, corrosion resistant PMMA construction, selectable reaction areas, simple assembly, stainless steel hardware, visible testing, customizable configurations, reliable laboratory battery evaluation and advanced materials studies.

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Application	Description	Key Benefit
Rechargeable Zinc Air Battery Evaluation	Assemble and compare zinc anodes, air cathodes, catalysts, and electrolyte formulations in a compact single-cell configuration.	Enables controlled comparison using selectable reaction areas and visible internal construction.
Metal Fuel Cell Reactor Research	Study zinc-based metal fuel cell reactions, electrode interfaces, and electrolyte behavior using a reusable laboratory reactor format.	Provides a defined electrode distance and low liquid volume for repeatable screening.
Transparent Zinc Air Test Device Development	Observe electrode positioning, electrolyte loading, and visible cell conditions during prototype assembly and operation.	Supports rapid inspection without opaque cell disassembly.
Neutral Electrolyte Screening	Evaluate neutral aqueous electrolyte formulations for rechargeable zinc air systems. Neutral media can reduce electrolyte carbonization caused by carbon dioxide and may suppress zinc dendrite formation compared with aggressive alkaline media.	Offers a practical platform for small-volume electrolyte comparisons while allowing researchers to investigate corrosion and charging side reactions.
Oxygen Reduction Catalyst Research	Test air cathodes using catalyst layers prepared on gas diffusion materials such as carbon cloth, then compare electrochemical behavior in single-cell experiments.	Accommodates small reaction areas that reduce catalyst and electrode material consumption.
Zinc Anode and Electrode-Area Studies	Compare different zinc electrode dimensions, active materials, and anode-to-cathode area relationships.	Supports multiple standard areas and highlights area-matching requirements before ordering.
Battery Materials Academic Research	Use the cell for student laboratories, advanced materials studies, electrochemical demonstrations, and early-stage prototype validation.	Simple manual assembly and transparent components help accelerate experimental setup and observation.

Parameter	Specification
Product Item Number	BE05
Equipment Type	Rechargeable zinc air electrolytic cell reactor and transparent zinc air test device
Main Body Material	PMMA organic glass
Overall Width × Height	7 × 6 cm
Positive and Negative Electrode Distance	1.4 cm
Maximum Liquid Capacity	3 to 6 ml
Standard Variant Identifiers	BE05 T1, BE05 T2, BE05 T3, BE05 T4, BE05 T4.5
Standard Reaction Areas	1, 2, 3, 4, and 4.5 cm^2
Fastener Material	304 stainless steel

Parameter	Specification
Fastener Type	Butterfly nuts and stainless steel screws
Assembly	Simple assembly and disassembly
Custom Reaction Area	Available for other requirements; confirm with customer service before ordering

Variant	Cathode Reaction Area	Anode or Zinc Electrode Reaction Area	Ordering Note
BE05 T1	1 cm^2	4.5 cm^2	The cathode and anode areas are not matched by default. Contact customer service before ordering if corresponding positive and negative electrode areas are required.
BE05 T2	2 cm^2	2 cm^2 unless otherwise specified	Confirm the required electrode-area relationship before ordering.
BE05 T3	3 cm^2	3 cm^2 unless otherwise specified	Confirm the required electrode-area relationship before ordering.
BE05 T4	4 cm^2	4 cm^2 unless otherwise specified	Confirm the required electrode-area relationship before ordering.
BE05 T4.5	4.5 cm^2	4.5 cm^2 unless otherwise specified	Confirm the required electrode-area relationship before ordering.