

Secondary Zinc Air Reactor Metal Fuel Cell Test Apparatus

Item Number: BE04



Introduction

Secondary zinc air reactor metal fuel cell test apparatus with leak resistant polypropylene construction, defined electrode spacing, selectable reaction areas, and controlled electrolyte volume for reliable laboratory evaluation of electrochemical performance, cathode behavior, anode response, and repeatable experimental workflows

[Learn More](#)

Application	Description	Key Benefit
Secondary Zinc Air Battery Research	Evaluate zinc anode and air cathode behavior in alkaline electrolyte systems during laboratory development of rechargeable zinc air cells.	Provides selectable reaction areas and defined electrode spacing for controlled comparisons.
Metal Fuel Cell Testing	Test metal-fuel electrochemical configurations where zinc or another compatible metal electrode is evaluated against an air electrode.	Supports repeatable cell assembly and practical adjustment of the active electrode geometry.
Air Cathode Development	Assess air cathode response, gas diffusion electrode behavior, and cathode-side performance while maintaining a defined cathode area.	The enlarged anode-side option can increase liquid capacity without changing the 1 cm ² cathode test area.
Zinc Anode Evaluation	Investigate zinc electrode performance, electrolyte interaction, and changes associated with anode geometry in alkaline conditions.	Multiple reaction-area configurations help align the test cell with the target electrode size.
Alkaline Electrolyte Studies	Conduct controlled experiments using alkaline electrolyte formulations, including 6 mol/L KOH as a reference condition.	Specified liquid capacities support consistent electrolyte dosing across configurations.
Electrode and Separator Studies	Examine electrode arrangements and separator-related test conditions in compact laboratory cells before extended electrochemical testing.	The detachable structure simplifies setup changes, inspection, and cleaning between trials.
Academic Electrochemistry Programs	Support teaching and research experiments involving zinc air chemistry, metal electrodes, and aqueous electrochemical systems.	Simple assembly and compact dimensions make the apparatus accessible for repeated bench-scale experiments.
Custom Battery R&D Protocols	Adapt the cell arrangement for project-specific active-area requirements or laboratory testing workflows.	Custom reaction-area configurations can be considered when standard options do not match the research design.

Parameter	BE04 1 cm ²	BE04 2 cm ²	BE04 3 cm ²	BE04 4 cm ²	BE04 4.5 cm ²
Site-facing configuration identifier	BE04 1 cm ² reaction area	BE04 2 cm ² reaction area	BE04 3 cm ² reaction area	BE04 4 cm ² reaction area	BE04 4.5 cm ² reaction area
Reaction area	1* cm ²	2 cm ²	3 cm ²	4 cm ²	4.5 cm ²
Liquid capacity using 6 mol/L KOH as an example	4 ml	2.5 ml	3.5 ml	4.5 ml	5 ml

General Parameter	Specification
Mold material	White PP board, polypropylene
Appearance	Opaque
Width	7 cm
Height	6 cm

General Parameter	Specification
Positive and negative electrode distance	1.4 cm
Sealing performance	No liquid leakage
Assembly	Simple to assemble
Disassembly	Easy to disassemble
Standard reaction-area options	1, 2, 3, 4, and 4.5 cm ²
Custom reaction areas	Other requirements can be customized; contact the supplier for confirmation

Configuration Note	Technical Detail
Enlarged anode-side arrangement	To increase the liquid quantity during reaction, the anode or zinc electrode side can use a 4.5 cm ² reaction area while the cathode remains 1 cm ² .
Effect on cathode testing	This adjustment itself does not affect cathode performance testing.
Return to 1 cm ² anode area	Contact the supplier if the anode area must be adjusted back to 1 cm ² .
Electrolyte reference	Liquid capacities are provided using 6 mol/L KOH as an example.