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In-Situ Raman Test Cell Catalog

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KINTEK SOLUTION

COMPANY PROFILE

>>> About Us

KINTEK Solution is a technology-driven innovator specializing in comprehensive laboratory equipment for battery R&D and advanced materials research. Our portfolio spans the entire cell fabrication workflow—from mixing, coating, and precision pressing (automatic, heated, isostatic) to cell assembly and testing. Also essential in ceramics and powder metallurgy, our systems prioritize precision, safety, and repeatability, empowering researchers and industrial labs to achieve groundbreaking results.

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

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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 cm² 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 cm²	BE04 2 cm²	BE04 3 cm²	BE04 4 cm²	BE04 4.5 cm²
Site-facing configuration identifier	BE04 1 cm² reaction area	BE04 2 cm² reaction area	BE04 3 cm² reaction area	BE04 4 cm² reaction area	BE04 4.5 cm² reaction area
Reaction area	1* cm²	2 cm²	3 cm²	4 cm²	4.5 cm²
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.

Solid State Zinc Air Battery Test Fixture Flexible Zinc Air Mold

Item Number: BE07

Introduction

Transparent solid state zinc air battery test fixture with flexible zinc air mold design, compact assembly, 1 to 4 cm² reaction areas, 0.2 cm electrode spacing, customizable construction, and clear observation for zinc air battery research and practical laboratory evaluation.

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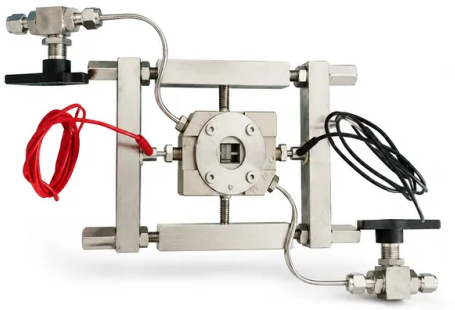
Application	Description	Key Benefit
Solid-State Zinc-Air Battery Research	Assemble positive and negative electrodes with a solid electrolyte in a controlled layered configuration for laboratory cell studies.	Provides a compact and clearly observable platform for experimental assembly.
Zinc-Air Electrode Evaluation	Compare electrode structures or material combinations using the available 1 cm², 2 cm², and 4 cm² reaction-area configurations.	Supports testing at different active-area scales without changing the basic fixture concept.
Solid Electrolyte Membrane Studies	Use the electrolyte membrane as the spacing-defining element between the positive and negative electrodes.	Connects the assembly gap directly to electrolyte membrane thickness.
Flexible Zinc-Air Mold Development	Apply the mold format in research workflows developing flexible or customized zinc-air battery structures.	Offers a simple base arrangement with customization available for project-specific needs.
Battery Materials Screening	Prepare small-area battery assemblies for early-stage investigation of materials and cell configurations.	Compact dimensions help organize small-scale laboratory experiments.
Academic and Advanced Materials Research	Support teaching, laboratory demonstrations, and exploratory research involving solid-state electrochemical cells.	Transparent construction improves visibility during setup and inspection.

Parameter	Specification	Notes
Product Item Number	BE07	Site-facing identifier for this product.
Product Type	Solid-state zinc-air battery test fixture and flexible zinc-air mold	Designed for laboratory assembly and observation of solid-state zinc-air battery structures.
Mold Material	Organic glass	Smooth and transparent surface.
Overall Width × Height	6 × 6 cm	Compact fixture dimensions provided in the reference materials.
Positive-to-Negative Electrode Distance	0.2 cm	The specific distance is determined by the thickness of the electrolyte membrane.
Available Configuration	BE07-1 cm²	Reaction area: 1 cm².
Available Configuration	BE07-2 cm²	Reaction area: 2 cm².
Available Configuration	BE07-4 cm²	Reaction area: 4 cm².
Reaction Area Options	1 cm², 2 cm², and 4 cm²	Select the configuration according to the required reaction area.
Assembly Arrangement	Positive electrode, negative electrode, and solid electrolyte stacked directly above the No. 1 plate	Supports convenient assembly of the layered cell structure.
Customization	Supported	Contact the supplier to discuss project-specific requirements.
Surface Characteristics	Smooth and transparent	Facilitates observation of the assembled components.

Parameter	Specification	Notes
Alcohol Handling	Do not place the organic-glass plate directly in ethanol or alcohol solution; do not pour alcohol onto the plate surface	These actions may cause surface cracking or damage. If oil is present, use a tissue with a small amount of alcohol to clean the surface.
Ultrasonic Cleaning	Prohibited	Do not clean the organic-glass plate with ultrasonic equipment.

Optical Testing Solid State Battery Device For Microscopy Raman And Infrared Cross Section Analysis

Item Number: BE11



Introduction

Optical testing solid state battery device with compact fixtures for microscope, Raman, and infrared cross section analysis, including venting configuration for advanced battery research. Supports precise laboratory characterization, flexible sample dimensions, and controlled access for materials science and cell development.

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Application	Description	Key Benefit
Solid-State Battery Cross-Section Testing	Position solid-state battery samples for direct examination of cross-sectional structures using laboratory optical methods.	Supports practical inspection of internal battery features during research and development.
Optical Microscopy	Use the fixture with an optical microscope to observe prepared battery cross sections and visible material interfaces.	Provides a dedicated holding solution for small battery samples during microscopic observation.
Raman Cross-Section Analysis	Apply Raman testing to solid-state battery cross sections for laboratory investigation of material regions and interfaces.	Enables the same sample fixture concept to support vibrational spectroscopy workflows.
Infrared Cross-Section Analysis	Integrate the equipment into infrared testing procedures for cross-sectional analysis of solid-state battery samples.	Broadens characterization options without requiring a separate sample-holding approach for each optical method.
Venting Optical Testing	Select the venting configuration when optical microscopy, Raman, or infrared cross-section testing requires gas access.	Supports test procedures that require a venting-compatible fixture arrangement.
Battery Materials Research	Use the equipment in advanced materials laboratories studying solid-state cell components and their cross-sectional characteristics.	Combines defined sample capacity with compatibility across multiple optical techniques.
Academic Cell Development	Support university and research-institute experiments involving small-format solid-state batteries and optical characterization.	Offers two fixture configurations to match different sample dimensions and experimental setups.

Specification	BE11 Standard Optical Testing Configuration	BE11 Venting Optical Testing Configuration
Configuration	Optical testing solid state battery device	Venting optical testing solid state battery device
Maximum battery inner diameter	≤10 mm	≤12 mm
Maximum battery thickness	≤3 mm	≤6 mm
Fixture length	115 mm	188 mm
Fixture height	28 mm	17.5 mm
Fixture width	60 mm	110 mm
Optical microscope cross-section testing	Available	Available with venting configuration
Raman cross-section testing	Available	Available with venting configuration
Infrared cross-section testing	Available	Available with venting configuration
Gas access	Not specified for this configuration	Venting type

Optical Testing Cross Section Aqueous Battery Device For Microscopy Raman And Infrared Analysis

Item Number: BE13

Introduction

Optical testing cross section aqueous battery device for microscopy Raman infrared analysis dendrite observation and conductivity measurement in advanced battery research applications

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Application	Description	Key Benefit
Aqueous Battery Cross Section Analysis	Position aqueous battery specimens for cross-sectional examination using a compatible optical or spectroscopic setup.	Supports direct study of internal structures and interfaces.
Optical Microscopy Observation	Use the fixture with an optical microscope to inspect visible features across the battery cross section.	Provides a practical route for visual assessment of localized changes.
Raman Spectroscopy of Battery Interfaces	Combine the unit with Raman analysis to examine material characteristics in selected cross-sectional regions.	Enables complementary chemical or structural investigation.
Infrared Cross Section Testing	Use the device with infrared instrumentation for analysis of suitable aqueous battery cross-sectional areas.	Adds infrared characterization to the battery research workflow.
Dendrite Growth Research	Study aqueous battery behavior while the wrapped cylindrical structure helps avoid dendrite growth on the metal surface.	Reduces a potential surface-related disturbance during observation.
Conductivity Measurement Studies	Use the 6 mm diameter electrode contact area as the defined area basis for conductivity calculations.	Simplifies area-related calculation and improves measurement clarity.
Advanced Materials Research	Apply the unit in university, industrial, or institutional laboratories investigating aqueous electrochemical materials.	Brings microscopy and spectroscopy access into a compact test fixture.

Parameter	Specification
Product Item Number	BE13
Product Type	Optical testing cross-section aqueous battery device
Compatible Battery Inner Diameter	≤12 mm
Compatible Battery Thickness	≤6 mm
Fixture Length	120 mm
Fixture Height	28 mm
Fixture Width	26 mm
Structural Design	Wrapped cylindrical structure
Dendrite-Related Design Function	Helps avoid dendrite growth on the metal surface
Metal Impedance Function	Can reduce, to a certain extent, interference from metal impedance
Contact Electrode Diameter	6 mm

Parameter	Specification
Conductivity Measurement Function	The contact electrode area facilitates area calculation during conductivity measurement
Optical Testing Compatibility	Optical microscope
Spectroscopic Testing Compatibility	Raman and infrared instruments
Optional Inner Diameter	12 mm, 14 mm, 16 mm

Reusable Gasket Sealed Electrolyte Cell Metal Fuel Cell Reactor

Item Number: BE06

Introduction

Reusable gasket sealed electrolyte cell and metal fuel cell reactor for transparent zinc air testing, external electrolyte circulation, oxygen experiments, reduced passivation, minimized concentration polarization, and reliable battery research across laboratories and advanced materials programs with selectable flow rates and storage capacities

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Application	Description	Key Benefit
Zinc Air Battery Testing	Evaluate zinc-air cell behavior using a transparent, sealed mold with controlled electrolyte circulation and defined cathode reaction areas.	Supports repeatable comparison of reaction performance while helping reduce ion depletion and electrode passivation effects.
Metal Fuel Cell Reactor Research	Use the unit as a compact reactor for investigating electrochemical reactions involving metallic fuel electrodes and circulating electrolyte.	Provides a practical laboratory platform with selectable active areas and external fluid management.
High Current Charge Discharge Studies	Circulate electrolyte during demanding charge and discharge experiments where concentration gradients may affect cell behavior.	Helps reduce concentration polarization and improves control of mass transport during high-current operation.
Pure Oxygen Electrochemical Experiments	Connect laboratory gas lines through the available 6, 8, or 10 mm tube fittings for oxygen-fed test protocols.	Enables controlled gas supply configurations for oxygen-related zinc-air and fuel cell research.
Electrolyte Circulation and Passivation Studies	Investigate how continuous electrolyte replacement influences consumed ions, negative-electrode passivation, and reaction stability.	Allows researchers to vary pump flow and storage capacity while monitoring electrochemical response.
Battery and Advanced Materials Laboratories	Integrate the equipment into academic, industrial, and materials research programs focused on electrochemical conversion and metal electrodes.	Combines compact dimensions, reusable construction, and several reaction-area options in one laboratory test format.

Parameter	Specification	Notes
Product identifier	BE06	Site-facing identifier for this product
Product type	Reusable gasket-sealed electrolyte cell and transparent zinc-air testing mold	Suitable for metal fuel cell reactor research
Mold material	Organic glass	Transparent cell body
Width × height	7*6 cm	Compact laboratory format
Positive and negative electrode distance	1.4 cm	Defined spacing between electrodes
Gas tube connector	6 / 8 / 10 mm	Can support pure oxygen experiments
External circulation pump flow rate option 1	3~10 ml/min	External pump configuration
External circulation pump flow rate option 2	20~65 ml/min	External pump configuration
Available reaction areas	1 / 2 / 3 / 4 / 4.5 cm^2	Selectable configuration options
Electrolyte storage bottle capacity	100 / 250 / 500 ml	Maximum liquid capacity depends on selected bottle
Fastener material	304 stainless steel	Applies to screws and nuts

Site-facing variant	Reaction area	Configuration note
BE06 TR1	1 cm²	Cathode reaction area is 1 cm²; the anode or zinc-electrode side has a 4.5 cm² reaction area.
BE06 TR2	2 cm²	Reaction area option referenced for the test mold.
BE06 TR3	3 cm²	Reaction area option referenced for the test mold.
BE06 TR4	4 cm²	Reaction area option referenced for the test mold.
BE06 TR4.5	4.5 cm²	Reaction area option referenced for the test mold.

4680 Cylindrical Battery Detachable Split Test Kit

Item Number: BE08

Introduction

Detachable split test kit for 4680 cylindrical battery research with corrosion resistant sealing, stainless steel end caps, PTFE insulation, and secure spring loaded cell fastening for repeatable laboratory testing and flexible advanced materials workflows

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Application	Description	Key Benefit
4680 Cylindrical Battery R&D	Use the fixture to position and retain 4680 cylindrical cells during laboratory evaluation, assembly preparation, and controlled test setup.	Provides a defined mechanical enclosure for repeatable cell handling.
Electrolyte-Related Cell Studies	The fluoro rubber O-ring and PTFE cylindrical component support fixture use in workflows where contact with battery electrolyte must be considered.	Helps select materials suited to electrolyte-corrosive environments.
Battery Cell Assembly Development	Use the detachable split structure to open the fixture, inspect cell placement, and reassemble the unit during process development.	Simplifies access and supports efficient iteration during assembly research.
University Battery Research	Academic laboratories can use the compact kit as a cell-holding component within broader battery research equipment and experimental platforms.	Offers a defined, reusable fixture format for repeated studies.
Advanced Materials Testing	Researchers studying material behavior in cylindrical battery-related structures can use the unit as a controlled mechanical support component.	Supports consistent specimen or cell positioning within laboratory workflows.
Custom Battery Test Integration	The kit can be incorporated into a customer-developed test arrangement where the cell requires spring-assisted fastening and a detachable enclosure.	Provides a practical starting point for customized equipment integration.

Parameter	Specification
Product item number	BE08
Product type	4680 cylindrical battery detachable split test kit
Applicable battery format	4680 cylindrical battery cell
Upper end-cap material	304 stainless steel
Lower end-cap material	304 stainless steel
End-cap outside diameter	68 mm
Middle cylindrical component material	PTFE
Optional customized cylindrical component material	PEEK
Cylindrical component inner diameter	46 mm
Cylindrical component height	80 mm
Cylindrical component outer diameter	55 mm
Cylindrical component external height	80 mm
O-ring material	Fluoro rubber

Parameter	Specification
O-ring characteristic	Resistant to electrolyte corrosion
Top-cover fastening mechanism	Built-in spring for securing the cell
Fixing screw specification	M4
Overall external dimensions	Φ68 mm × H106 mm

Aqueous Battery Testing Fixture For Laboratory Cell Evaluation

Item Number: BE12

Introduction

Aqueous battery testing fixture for cells up to 20 mm internal diameter and 4 mm thickness, featuring a 50 mm diameter clamp, PI film window, PEEK insulation, and high-purity titanium metal components for adaptable laboratory evaluation of aqueous battery performance.

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Application	Description	Key Benefit
Aqueous Battery Cell Screening	Position compact aqueous battery specimens within the specified internal diameter and thickness range for laboratory evaluation.	Provides a defined mechanical interface for repeatable early-stage cell comparisons.
Battery Materials Research	Support research teams evaluating electrode, separator, or electrolyte combinations in small-format aqueous battery configurations.	Connects specimen handling with a compact, dimensionally controlled fixture.
Electrochemical Test Platform Integration	Install the fixture on a compatible testing base or adapt the setup using a lifting platform to reach the required height.	Enables practical integration with existing laboratory test stations.
Cell Design Verification	Use the fixture when checking the physical fit and test accessibility of compact battery structures before broader experimental campaigns.	Helps researchers identify dimensional and clearance requirements early.
Academic Battery Research	Provide a defined holding solution for university and institutional laboratories conducting aqueous battery experiments.	Supports flexible setup planning without requiring a single fixed instrument platform.
Custom Laboratory Test Development	Configure the support arrangement around a customer’s equipment after reviewing platform photographs and measured dimensions.	Simplifies application-specific adaptation for nonstandard testing environments.

Parameter	Specification
Product Item Number	BE12
Intended test object	Battery cell
Maximum battery internal diameter	≤20 mm
Battery thickness range	0–4 mm
Fixture diameter	50 mm
Total fixture height	17.75 mm
Fixture height without insulating bottom	13.75 mm
Window material	PI film
Fixture material	PEEK and high-purity titanium
Metal components	High-purity titanium for all metal portions
Base configuration	Different equipment-model bases available by contacting the supplier
Base configuration information required	Customer provides a photograph of the testing platform and measures the required dimensions
Alternative installation method	Customer may purchase a lifting platform and raise the fixture to the required testing height

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

Item Number: BE03

Introduction

Rechargeable zinc air electrolytic cell cycling test device with modular PP reactor, 1 to 4.5 cm^2 reaction areas, circulating electrolyte, forced oxygen supply, leak resistant sealing, and customizable gas connections for metal fuel cell research and advanced materials laboratories.

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Application	Description	Key Benefit
Rechargeable Zinc Air Cell Research	Evaluate rechargeable zinc air electrochemical cells using selected cathode reaction areas and controlled alkaline electrolyte circulation.	Supports repeatable comparison of electrode behavior across multiple reaction-area configurations.
Zinc Electrode Passivation Studies	Circulate electrolyte through the reactor to examine how fluid movement affects negative-electrode passivation during operation.	Helps researchers assess operating conditions intended to reduce passivation effects.
Metal Fuel Cell Reactor Development	Use the unit as a laboratory reactor for metal fuel cell experiments involving zinc or other compatible metal-electrode concepts.	Provides a compact test platform for early-stage reactor and electrode development.
Pure Oxygen Performance Testing	Connect an oxygen cylinder to investigate electrochemical behavior under a forced, oxygen-rich reaction environment.	Enables direct comparison of oxygen-supply conditions and their influence on reaction efficiency.
Electrolyte Circulation Comparison	Run tests with circulating electrolyte, non-circulating electrolyte, or natural-state operation by changing the detachable fluid connection arrangement.	Separates the influence of electrolyte movement from the intrinsic performance of the cell configuration.
Advanced Materials Research	Study alkaline-compatible electrode materials, gas diffusion structures, and related components in a controlled laboratory reactor.	Offers selectable reaction areas and configurable operating conditions for material screening.
Academic Electrochemistry Experiments	Demonstrate zinc air reaction principles, electrolyte management, oxygen supply, and electrode-area effects in university laboratories.	Combines compact dimensions with accessible configuration changes for teaching and research.

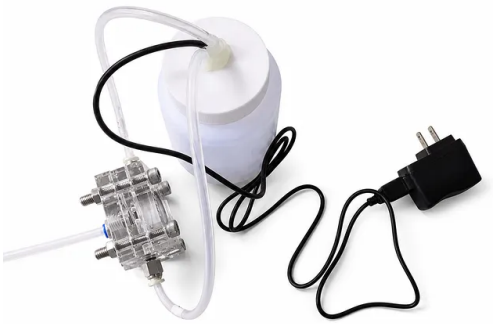
Specification Category	Parameter	BE03 Specification
Product identification	Item number	BE03
Product identification	Product type	Rechargeable zinc air electrolytic cell cycling test device; metal fuel cell reactor
Construction	Mold material	White polypropylene plate
Construction	Material appearance	Opaque
Dimensions	Width	7 cm
Dimensions	Height	6 cm
Cell geometry	Positive and negative electrode distance	1.4 cm
Connections	Gas-tube connector sizes	6 mm, 8 mm, and 10 mm
Sealing	Sealing performance	No liquid leakage
Electrolyte handling	Liquid reservoir capacity	500 ml reservoir bottle

Specification Category	Parameter	BE03 Specification
Operation	Electrolyte circulation	Electrolyte can flow and circulate through the system
Operation	Oxygen supply	Pure-oxygen operation is possible when connected to an oxygen cylinder
Configuration	Available reaction areas	1 cm^2, 2 cm^2, 3 cm^2, 4 cm^2, and 4.5 cm^2
Configuration	Custom reaction area	Other requirements can be customized

Site-Facing Identifier	Reaction Area	Reference Configuration Note
BE03 1 cm^2	1 cm^2	The 1 cm^2 configuration uses a 1 cm^2 cathode reaction area. The anode or zinc-electrode side is enlarged to approximately 5.3 cm^2 to increase the liquid volume in the device. This adjustment does not affect cathode performance testing.
BE03 2 cm^2	2 cm^2	Standard configuration with a 2 cm^2 reaction area.
BE03 3 cm^2	3 cm^2	Standard configuration with a 3 cm^2 reaction area.
BE03 4 cm^2	4 cm^2	Standard configuration with a 4 cm^2 reaction area.
BE03 4.5 cm^2	4.5 cm^2	Standard configuration with a 4.5 cm^2 reaction area.

Air Fuel Cell Test Equipment Electrolyte Circulation Pump

Item Number: BE01



Introduction

Air fuel cell test equipment electrolyte circulation pump for reliable liquid management sealed acid alkali resistant operation four flow settings and 300–600 mL/min circulation helps reduce anode passivation and polarization during fuel cell research and testing with convenient connections

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Application	Description	Key Benefit
Air Fuel Cell Performance Testing	Circulates electrolyte during controlled air fuel cell experiments and supports the liquid-management portion of the test setup.	Helps maintain repeatable electrolyte movement across test runs.
Anode Reaction Research	Supports experiments focused on anode behavior by circulating electrolyte through the reaction system.	Helps reduce anode passivation during operation.
Polarization Evaluation	Provides electrolyte circulation during studies of reaction polarization and operating response.	Helps reduce polarization and improve control of test conditions.
Electrolyte Compatibility Studies	Uses acid- and alkali-resistant materials for testing workflows involving different electrolyte environments.	Supports broader electrolyte application compatibility.
Fuel Cell Component Screening	Adds controlled circulation to laboratory screening of air fuel cell components and reaction configurations.	Provides a practical, adjustable circulation condition for comparative testing.
Academic Electrochemical Research	Integrates with laboratory air fuel cell research conducted by universities and materials laboratories.	Offers a compact auxiliary function for repeatable experimental setups.
Modular Test System Construction	Serves as the electrolyte circulation component when researchers configure or expand an air fuel cell test arrangement.	Simplifies the separation of circulation and testing functions.

Parameter	Specification
Product Item Number	BE01
Product Type	Electrolyte circulation equipment for air fuel cell test equipment
Primary Function	Circulation of electrolyte during air fuel cell testing and research
Pump Flow Rate	300–600 mL/min
Flow Selection	Four flow levels
Design	Sealed design
Connections	Convenient connection design
Material Resistance	Resistant to acids and alkalis
Intended Integration	Air fuel cell test equipment
Included Function	Electrolyte circulation
Testing Equipment Status	The price does not include the air fuel cell testing equipment
Circulation Effect	Helps reduce anode passivation and polarization through electrolyte circulation

Ct Testing Solid State Battery Device

Item Number: BE09

Introduction

CT testing solid state battery device for compact cell fixture evaluation with 2 mm inner diameter, optional display, external fixture, and 2 ton sensor integration for laboratory research workflows.

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Application	Description	Key Benefit
Solid State Battery Cell Testing	Prepare compact solid-state battery assemblies for CT testing using the defined 2 mm internal fixture geometry and compatible mold arrangement.	Supports repeatable setup for small-format research samples.
Solid Electrolyte Research	Use the fixture during development work involving solid electrolytes, compact test cells, and experimental material combinations.	Provides a defined mechanical platform for early-stage materials evaluation.
Battery R&D Laboratory Workflows	Integrate the unit into laboratory procedures that require fixture assembly before transferring the prepared mold to a testing system.	Simplifies preparation and reduces unnecessary handling before testing.
Advanced Materials Development	Apply the equipment to compact material research assemblies where fixture dimensions, clearance, and structural layout must be planned in advance.	Delivers clearly specified geometry for equipment integration.
Force Measurement Testing	Configure the assembly with the optional 2 ton sensor when test procedures require force-related measurement capability.	Extends the fixture arrangement for measurement-focused laboratory work.
Instrumented Test Stations	Add the optional display to create a more complete local indication arrangement around the configured test fixture.	Improves access to visible readings during laboratory operation.
Custom Laboratory Integration	Incorporate the fixture into a buyer-defined test station after reviewing the 70 mm external diameter and 109 mm structural height.	Supports practical planning for compact installation spaces and associated equipment.

Specification Category	Parameter	Value
Product Identification	Item number	BE09
Product Type	Equipment	CT testing solid state battery device
Internal Geometry	Inner diameter	2 mm
Fixture Dimensions	External fixture diameter	70 mm
Structural Dimensions	Height from bottom to top of three-column structure	109 mm
Assembly Options	External fixture	Can be added during assembly
Assembly Options	Display	Can be added during assembly
Assembly Options	Sensor capacity	2 ton sensor can be added during assembly
Testing Preparation	Mold requirement for testing	Only one mold is required when sending the assembly for testing

Xrd Testing Solid State Battery Device For Electrolyte Pellet Analysis

Item Number: BE10

Introduction

XRD testing solid-state battery device for 16mm battery samples supports 0-6mm thickness and a 50mm fixture diameter with adaptable mounting for laboratory diffraction workflows. Designed for electrolyte pellet preparation and adaptable laboratory platform integration.

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Application	Description	Key Benefit
Solid-State Battery Research	Position and examine compatible solid-state battery specimens during XRD testing, using the defined 16 mm internal diameter and 0-6 mm thickness range.	Establishes a practical sample interface for battery material characterization.
Electrolyte Pellet Evaluation	Press a separate 16 mm electrolyte pellet before transferring the prepared specimen to the testing fixture for diffraction analysis.	Separates pellet preparation from measurement and clarifies the laboratory workflow.
Battery Materials Development	Support iterative evaluation of electrolyte and related solid-state battery materials during research and development programs.	Provides repeatable dimensional references for comparing compatible specimens.
XRD Platform Integration	Match the fixture with different instrument bases or use a customer-supplied height-adjustable platform to achieve the required testing height.	Offers a flexible route for adapting the unit to existing laboratory equipment.
Advanced Materials Characterization	Use the fixture as part of a materials research setup where controlled positioning and sample dimensions are important for XRD measurements.	Helps laboratories plan installation around known fixture and optical-slot dimensions.

Parameter	Specification
Product Item Number	BE10
Intended test application	XRD testing of solid-state battery-related samples
Battery inner diameter	16 mm
Compatible sample thickness	0-6 mm
Fixture diameter	50 mm
Height from bottom to center optical slot	24 mm
Total height	30 mm
Electrolyte pellet requirement	A separate mold is required to press the 16 mm electrolyte pellet
Base configuration	Different equipment models require different base configurations; contact technical support for matching assistance
Customer information for base matching	Provide a photograph of the testing platform and measure the dimensions required for installation
Alternative installation method	The customer may purchase a height-adjustable platform and raise the unit to the required testing height

Quick Change Zinc Plate Large Capacity Zinc Air Test Cell

Item Number: BE02

Introduction

Quick change zinc plate zinc air test cell with transparent PMMA housing rapid anode replacement 30ml electrolyte capacity adjustable reaction areas and precise electrode spacing for reliable laboratory battery research and advanced materials evaluation under controlled experimental conditions

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Application	Description	Key Benefit
Zinc Air Battery Research	Evaluate zinc plate anodes, air cathode assemblies, and electrolyte behavior in laboratory-scale zinc air battery experiments.	Rapid electrode replacement accelerates sample comparison and screening.
Zinc Electrode Material Evaluation	Compare zinc plate compositions, surface treatments, thicknesses, and preparation methods within a defined cell geometry.	Consistent 0.5 cm electrode spacing improves test-to-test comparability.
Electrolyte Formulation Studies	Investigate the influence of different manually added liquid formulations on zinc air cell reaction behavior.	The 30 ml capacity supports longer reactions with fewer interruptions.
Battery R&D Laboratories	Support early-stage cell design, electrode validation, and performance experiments before larger-format development.	Compact dimensions conserve bench space while providing several reaction-area choices.
Academic Electrochemistry Research	Provide a visible test platform for teaching, research, and repeatable demonstrations involving zinc air electrochemistry.	Transparent PMMA construction makes internal conditions easier to observe.
Advanced Materials Development	Examine how new electrode or electrolyte materials perform in a controlled zinc air test configuration.	Quick anode changes improve experimental throughput during material screening.
Small-Scale Cell Assembly Studies	Assemble and assess laboratory battery structures using zinc plates within specified dimensional limits.	The fixed anode fixture simplifies positioning and replacement.

Parameter	Specification	Notes
Product item number	BE02	Site-facing identifier for this product
Site-facing variant identifiers	BE02 1 cm^2, BE02 2 cm^2, BE02 3 cm^2, BE02 4 cm^2, BE02 5 cm^2	Identifiers are differentiated by reaction area
Mold material	Organic glass PMMA	Transparent and durable housing material
Overall dimensions	6.5 × 6 × 7.2 cm	Length × width × height
Positive-to-negative electrode distance	0.5 cm	Fixed electrode spacing
Reaction area variants	1 cm^2, 2 cm^2, 3 cm^2, 4 cm^2, 5 cm^2	Selectable configuration range
Liquid capacity	30 ml	Capacity after assembly for sustained reaction testing
Compatible anode width	≤34 mm	Zinc plate requirement
Compatible anode thickness	≤2.5 mm	Zinc plate requirement
Compatible anode length	55 mm to 80 mm	Zinc plate requirement
Anode replacement method	Plug-in fixed anode structure	Replacement can be completed within approximately 2 seconds
Liquid addition method	Manual liquid addition only	Not suitable for circulation pumps

Parameter	Specification	Notes
PMMA cleaning restriction	Do not place the PMMA plate directly in alcohol solution or pour alcohol onto its surface	Alcohol exposure can cause surface cracking or damage
PMMA surface cleaning guidance	When oil is present, use a tissue lightly moistened with a small amount of alcohol to clean the surface	Apply alcohol sparingly and indirectly
Ultrasonic cleaning	Prohibited	Do not use ultrasonic cleaning on the PMMA plate

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.

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