

# Spherical Electrochemical Corrosion Test Cell With Luggin Capillary And Specimen Holder

Item Number: PL-DJ18



## Introduction

Optimize your electrochemical analysis with this spherical corrosion test cell featuring an adjustable Luggin capillary, secure PTFE seals, and a jacketed design, engineered specifically for highly reproducible three-electrode corrosion studies in harsh laboratory environments.

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Application	Description	Key Benefit
<b>Alloy Pitting &amp; Crevice Evaluation</b>	Characterizing the susceptibility of stainless steels and nickel alloys to localized corrosion in acidic or halide-bearing solutions.	Precision-defined 1.0 cm <sup>2</sup> exposure area prevents edge-effect crevice corrosion, ensuring reliable pitting potential data.
<b>Corrosion Inhibitor Screening</b>	Evaluating the efficiency of organic and inorganic chemical inhibitors added to simulated industrial water systems or oilfield brines.	F-type gas purging permits rapid de-aeration to simulate anaerobic pipeline conditions with high repeatability.
<b>Marine Material Optimization</b>	Simulating long-term exposure of structural marine alloys, coatings, and surface treatments in synthetic seawater environments.	High borosilicate glass and PTFE construction resist aggressive saltwater solutions without leaching trace elements.
<b>Petrochemical Process Simulation</b>	Testing metal specimens under hot acidic conditions simulating refinery distillation columns and chemical reactors.	Jacketed outer wall enables precise temperature control from room temperature up to 150°C using silicone oil.
<b>Electrochemical Impedance Spectroscopy</b>	Performing high-frequency AC impedance sweeps to study the passivation kinetics and oxide film growth on metals.	The adjustable Luggin capillary minimizes solution resistance, preventing high-frequency phase shifts and artifacts.
<b>Acid Rain &amp; Atmospheric Simulation</b>	Investigating the atmospheric degradation of architectural metals and coated steels using sulfurous or nitrous simulated acid rain.	Saturated KNO <sub>3</sub> salt bridge prevents chloride contamination, isolating the exact chemical influence of acid rain anions.

Parameter	Description / Specification	Details
<b>Model Number</b>	PL-DJ18	Universal Reference Code
<b>Standard Volume Options</b>	500 mL / 1000 mL	Custom volumes available upon request
<b>Vessel Material</b>	High Borosilicate Glass 3.3	Low thermal expansion, high optical clarity
<b>Lid &amp; Stopper Material</b>	Pure Polytetrafluoroethylene (PTFE)	Superior chemical inertness and CNC accuracy
<b>Vessel Configuration</b>	Single-Layer (Standard) / Double-Layer (Jacketed)	Jacketed model supports circulating water/oil baths
<b>Working Electrode Sample Diameter</b>	14 mm	Flat disc specimen geometry
<b>Exposed Specimen Area</b>	1.0 cm <sup>2</sup>	Standardized for current density calculation
<b>Salt Bridge Assembly</b>	Adjustable-angle Luggin capillary	Reduces IR drop during polarization sweeps
<b>Salt Bridge Solution</b>	Saturated Potassium Nitrate (KNO <sub>3</sub> )	Chloride-free salt bridge design

Parameter	Description / Specification	Details
<b>Gas Inlet Configuration</b>	F-type dual-phase purging tube	Sub-surface bubbling and head-space blanketing
<b>Sealing Interfaces</b>	Ground-glass joint with tapered PTFE lid	Threaded compression O-ring seals for electrodes
<b>Temperature Range</b>	Room Temperature to 90°C (Water) / 150°C (Oil)	Supported on jacketed variants
<b>Port Configuration</b>	5-Port (Standard) / 6-Port (Optional)	6-Port option adds thermometer port to cell body
<b>Included Components</b>	Glass Cell Body, F-Type Gas Inlet, Salt Bridge, Liquid Seal, PTFE Stopper Set, Specimen Holder, Graphite Rod Electrode	Comprehensive kit for immediate electrochemistry
<b>Chemical Compatibility</b>	Highly compatible with organic solvents and mineral acids	Strictly exclude Hydrofluoric Acid (HF)