Detailed Specifications of H-Cell

BASi

Reach Your Potential

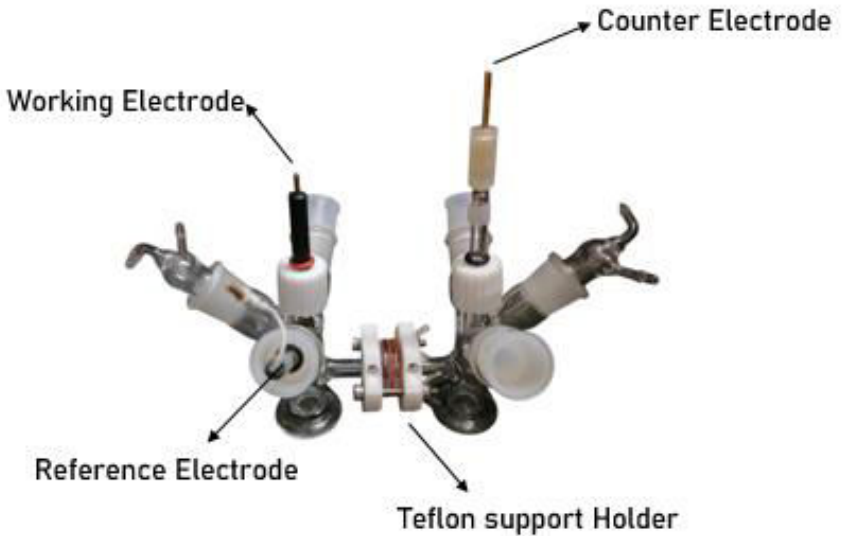
ELECTROCHEMICAL H–CELL

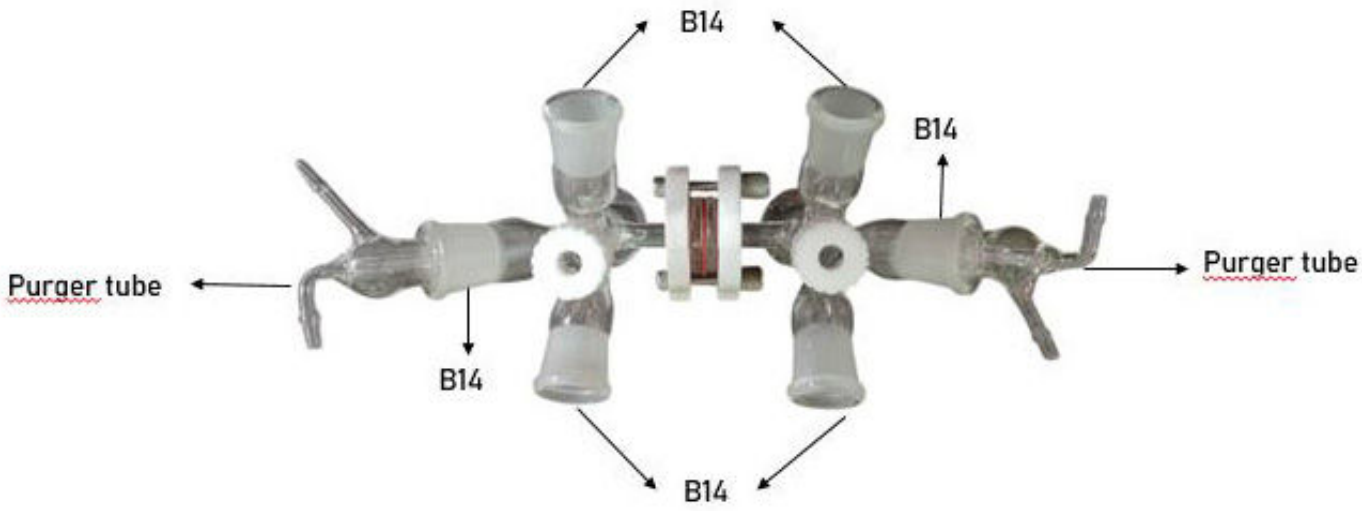
The H-type electrochemical cell includes two variants: the H-type replaceable ion-exchange membrane electrolyser and the H-type glass filter element electrolyser.

The replaceable ion-exchange membrane model is a dual-chamber, three-electrode electrochemical cell designed for experiments where anode and cathode electrolytes must remain separate—such as CO_2 reduction (CO_2RR), nitrogen reduction (NRR), and similar tests. For operations requiring a specific gas atmosphere or oxygen-free conditions, a sealed version with gas inlet and outlet ports is necessary.

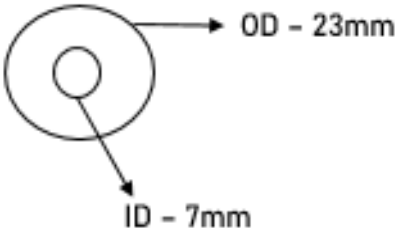
This electrolyser consists of a working electrode chamber and a counter electrode chamber, separated by a user-supplied ion-exchange membrane. Teflon support holder allow for quick membrane replacement. The reference and working electrodes share the same chamber, minimizing solution resistance. The cell is designed for quick assembly, disassembly, and easy cleaning.

FOR 5ML & 10ML





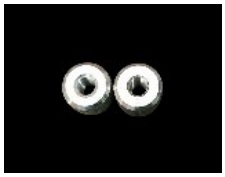
Membrane Dimension



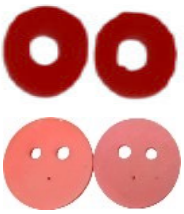
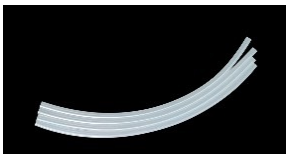
Top View

Side View

TECHNICAL SPECIFICATIONS

Includes	Ipgi_U_HC5	Ipgi_U_HC10	Images
Glass Reservoir With 3 side port	02 Nos	02 Nos	
Spacer (silicon) (ID 8mm, OD 23mm, 1mm thick)	02 Nos	02 Nos	
SS - Screw	02 Nos	02 Nos	
Grip Nut	02 Nos	02 Nos	
Purger (Glass)	02 Nos	02 Nos	
Teflon Support for holder (PTFE)	02 Nos	02 Nos	

TECHNICAL SPECIFICATIONS

Includes	Ipgi_U_HC5	Ipgi_U_HC10	Images
Top Dummy (silicon)	02 Nos	02 Nos	
Top Dummy with hole (silicon)	02 Nos	02 Nos	 5 ml 10 ml
Plugs Dummy (teflon)	02 Nos	06 Nos	
Silicon tube 0.5m (ID 0.12 inch (ID 3mm)	04 Nos	04 Nos	
Silicon septa with 4mm hole (03 Nos) and without hole (03 Nos)	06 Nos	06 Nos	

1. ELECTROCHEMICAL REACTIONS (E.G., REDOX CHEMISTRY)

> **Separated electrode chambers:** The two arms of the H allow physical separation of the anode and cathode compartments to prevent cross-contamination of reaction products

> **Three ports usage:**

- **Port 1:** Inert gas inlet (e.g., nitrogen or argon)
- **Port 2:** Electrode insertion
- **Port 3:** Sampling or reagent addition

2. PHOTO ELECTROCHEMISTRY

> Ideal for studying light-driven reactions, where the two compartments can hold different materials or solutions (e.g., photosensitizers and electron acceptors).

> The bridge (with or without a frit or membrane) allows controlled ion transport.

3. ELECTRO CATALYSIS SCREENING

> Small volume is suitable for screening catalytic materials using minimal reagents.

> Useful for hydrogen evolution reaction (HER), oxygen evolution reaction (OER), or CO_2 reduction studies.

4. ION TRANSPORT OR MEMBRANE STUDIES

> The central frit or membrane simulates biological or synthetic membranes.

> Enables study of ion selectivity, transport rates, or crossover suppression.

5. GAS EVOLUTION/ABSORPTION REACTIONS

> Gas (e.g., H_2 or O_2) generated at one electrode can be captured separately.

> Ports can accommodate gas-tight septa for gas sampling.

6. BATTERY RESEARCH

> Used for half-cell testing or redox flow battery studies in a compact form.

SETUP FOR H-CELL EXPERIMENT

1. CLEAN AND DRY THE CELL

> Rinse with solvent (e.g., acetone or ethanol), then DI water.
> Dry in an oven or with dry N_2.

2. INSERT ELECTRODES

> **Working electrode (WE):** Insert into one side (usually with reference electrode).
> **Reference electrode (RE):** Placed close to the WE to reduce IR drop.
> **Counter electrode (CE):** Placed in the opposite chamber.

3. ADD ELECTROLYTE

> Fill both chambers (~5 or 10 mL total depending on cell) to just above the frit.
> Ensure levels are balanced to prevent pressure-driven cross-flow.

4. SEAL AND CONNECT

> Use septa or stoppers to seal unused ports.
> Connect gas lines to ports if purging (typically for 15–30 min under N_2/Ar).
> Connect WE, RE, CE to the potentiostat leads.

5. PURGE IF NECESSARY

> For oxygen-sensitive reactions, purge both chambers with inert gas.

6. RUN EXPERIMENT

> Electrochemical methods: CV, chronoamperometry, electrolysis, etc.
> Monitor gas evolution or collect samples if required.

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