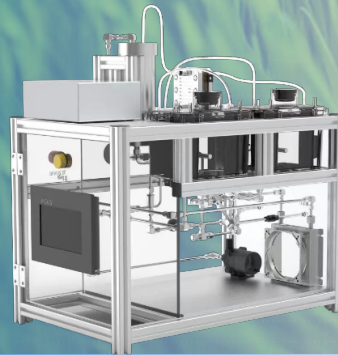
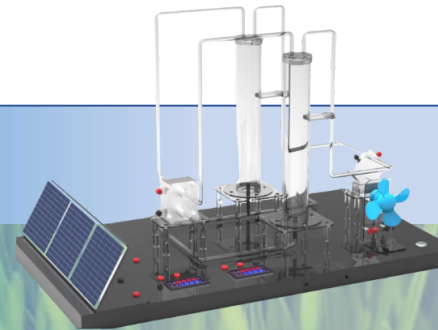
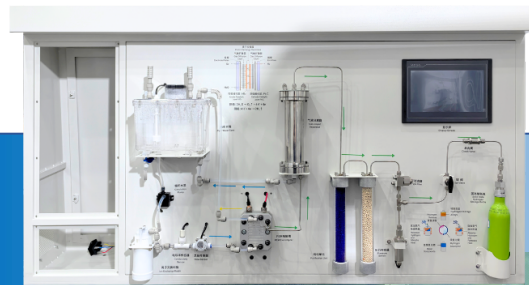


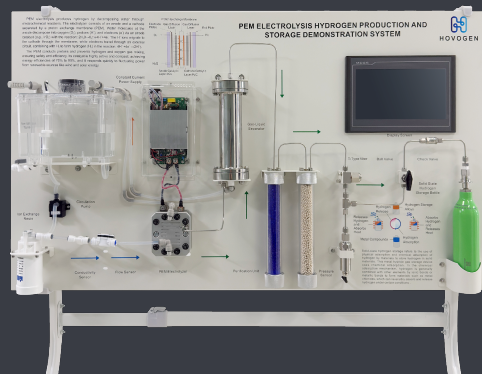
From Classroom to Laboratory: Bridging Education and Research in Hydrogen Energy

### PEM Electrolysis Training Units



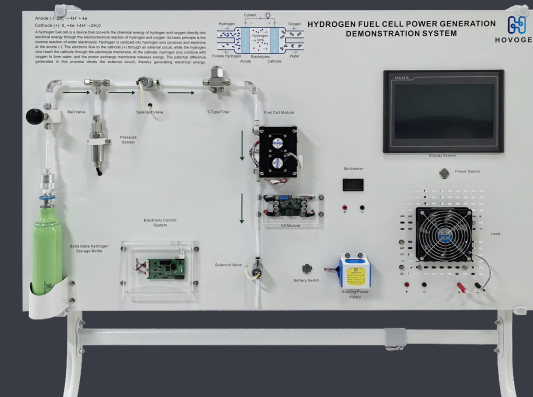
## Generation Unit

### PEM water electrolysis hydrogen production and storage demonstration system



## Fuel Cell Unit

### Hydrogen fuel cell power generation demonstration system



✓ Full-process transparency: The panel display is clear and the modules can be independently disassembled and assembled

✓ Data quantitative analysis: The touch screen monitors the electrolysis voltage/current, water quality conductivity, flow rate/pressure in real time, and calculates the energy conversion rate.

✓ PEM pure water electrolysis technology: No alkali solution contamination, integrated solid-state hydrogen storage.

✓ Multiple protections: Dual-stage purification (color-changing silica gel + molecular sieve), overpressure protection, leakage alarm.

✓ Full-process visualization: The panel marks the hydrogen supply → power generation → power consumption chain, and the transparent structure displays the reaction process.

✓ Modular experiments: Support step-by-step experiments

✓ Triple protection: low-pressure solid-state hydrogen storage (<1.6MPa), PLC automatic overpressure shutdown, and emergency exhaust solenoid valve pressure relief. High current density

#### PEM electrolytic water hydrogen production and storage demonstration system

Item	Specification	Unit	Parameter
PEM electrolyzer	Hydrogen flow rate	ml/min	500
	Oxygen flow rate	ml/min	250
	Supply voltage	V	9
	Supply Current	A	25
	Excluding ear size	mm	1200*700*180
	Including ear size	mm	1200*700*180
Solid state hydrogen storage cylinder  *can be replaced with gaseous cylinder	Bottle diameter	mm	60
	Bottle height	mm	258
	weight	kg	1.5
	Hydrogen storage capacity	g	>22
	Hydrogen storage capacity	Mpa	1.0
	Continuous hydrogen desorption pressure	Mpa	0.6
	Hydrogen release rate	L/min	>4

#### PEM electrolytic water hydrogen production and storage demonstration system

Item	Specification	Unit	Parameter
Fuel cell	Rated voltage	V	9
	Rated current	A	25
	efficiency	%	≥45
	Hydrogen pressure	MPa	0.035 ~0.05
	Hydrogen purity	%	≥99.99 (CO≤1PPM)
	Theoretical hydrogen consumption at rated power	L/min	2.89
	Theoretical air consumption at rated power	L/min	114.6
	Fuel cell weight	Kg	1.43
Solid state hydrogen storage cylinder  *can be replaced with gaseous cylinder	Bottle diameter	mm	60
	Bottle height	mm	258
	weight	kg	1.5
	Hydrogen storage capacity	g	>22
	Hydrogen filling pressure	Mpa	1.0
	Continuous hydrogen desorption pressure	Mpa	0.6
	Hydrogen release rate	L/min	>4

## Test Unit

### Single-Channel Test Unit

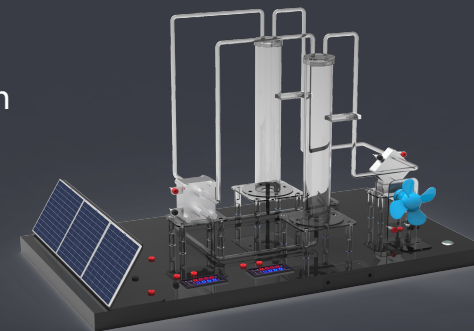
Can be customized according to application requirement



## Demonstration Kit

### Photovoltaic Hydrogen Production Demonstration Kit

Can be customized according to application requirement



✓ Wide-range adjustable power supply: Constant current/constant voltage mode, supporting research on polarization curves, voltage attenuation, catalyst degradation.

✓ Siemens PLC (SMART 200 ST40) realizes automatic water circulation replenishment, current step loading and safety interlock.

✓ The core components (MEA, catalyst, power supply) can be customized and replaced to support material research and development.

✓ Full parameter monitoring: Real-time collection of voltage, current, temperature and pressure, MCGS touch screen data visualization and export.

✓ Full-process transparent design: Transparent pipelines visually display the gas generation, gas-liquid separation and fuel cell reaction processes.

✓ Real-time current/voltage monitoring panel, quantifying energy conversion efficiency.

✓ Integrate the gas-liquid separator with the water circulation system to achieve closed water management. High current density

✓ The low-power design (1W fuel cell) reduces operational risks and is suitable for classroom demonstrations.

#### Single channel test unit

Hydrogen flow rate (mL/min)	100(Customizable)
running temperature (°C)	5-70
Intake water quality requirement	Deionized water (> 10MΩ•CM)
Working pressure (MPa)	Atmospheric pressure(Customizable)
Voltage	220 V
Application field	Electrochemical workstation

#### Photovoltaic demonstration teaching kit

Hydrogen production (mL/min)	60
Fuel cell specification (W)	50
running temperature (°C)	5-70
Intake water quality requirement	Deionized water (> 10MΩ•CM)
Working pressure (MPa)	Atmospheric pressure
Power source	Solar power
Single signage size (mm)	1000*700*30
Application field	Teaching demonstration





## COMPANY PROFILE



## PRODUCTION BASE



### Technical advantages

Master PEM water electrolysis hydrogen production core technology.

### Supply chain supporting

R&d, production, sales and service quality supply chain system to shorten the development cycle;

### Service advantages

High Standard, high quality, high efficiency, high cost-effective customer-centric, according to demand professional customization.

20000 m<sup>2</sup>/Production base  
Lay the foundation for efficient production

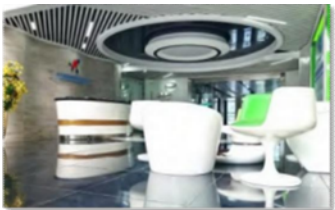
5500 m<sup>2</sup>/Diversity office  
High-quality technology development space

500 m<sup>2</sup>/ Exhibition Hall  
Provide the ultimate experience environment

## PEM HYDROGEN ELECTROLYSER SUPPLIER

As a leading technology company in the hydrogen industry, we are driven by an unwavering commitment to the development and research of PEM (Proton Exchange Membrane) hydrogen electrolyzers and cutting-edge products. By leveraging our technical expertise, we are paving the way for a sustainable future.

HOVOGEN is a state-level high-tech enterprise dedicated to the advancement of the hydrogen energy industry. It operates research and development, production, and operational facilities in both the Songshan Lake Hi-Tech Industrial Development Zone and the Zhuzhou Hi-Tech Industrial Development Zone.



After 10 years of product development, testing, technology reserves and market docking, investment of more than 60 million yuan, has a complete independent intellectual property system, he has obtained many national invention patents in the field of PEM hydrogen production by water electrolysis and participated in the formulation of two national standards, have Rich Technical Research, product development, industrial production experience.





## CORPORATE HONOR



## To participate in the formulation of national standards

The company has participated in the formulation of two hydrogen production industry standards: technical requirements for hydrogen production system by pressure water electrolysis (GB/T 37562-2019) and safety requirements for hydrogen production system by pressure water electrolysis (GB/T37563-2019)



Passed ISO14001 Environmental Management System certification

Through ISO9001 Quality Management System certification

Occupational Health and Safety Management System certification



Obtained AAA Credit Rating Qualification Certificate Credit-abiding enterprises model units of credit management, quality service units of credit, Credit Enterprises, credit suppliers, credit enterprises



HOVOGEN obtained a number of PEM hydrogen electrolysis invention patents



Patent certificate



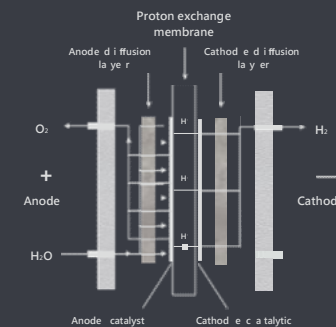
Authoritative Product Inspection Reports



## Technology and products

### Master PEM water electrolysis hydrogen production core technology

Compared with other water electrolysis technology, PEM can work at high current density, small size, high efficiency, the purity of hydrogen generated by up to 99.999%, is considered as the most promising water electrolysis technology. HOVOGEN hydrogen can improve the quality of PME water electrolysis cell by fine work, and strict process requirements, committed to become the world's leading PEM water electrolysis hydrogen production equipment provider.



A series of high- efficiency membrane elect rode preparation and production technology

Preparation and production technology of super corrosion resistant collector

High performance bi polar plate design technology and processing technology

High energy efficiency and high pressure resistance

Series PEM water elect rolytic reactor design and integrated test technology

P EM hydrogen production system design and system i ntegration technology

### Self-developed PEM water electrolysis hydrogen production core products

Hydrogen production equipment

Hydrogen industrial PEME

Hydrogen PEME for consumer product

