DEVELOPING INDEPENDENT TECH, SERVING HYDROGEN SOCIETY

Corporate Website

WeCom

Ningbo Zhongke Cotrun New Energy Science Technology Co., Ltd.

AD 3F, No.20, Kandun West Street, CiXi, ZheJiang 315303, China

E zkkcenergy@cas-nano.cn

W www.cas-nano.cn

T 0086-574-63081905

YHKC

Ningbo Zhongke Cotrun New Energy Science Technology Co., Ltd.

- Nano-catalyst Expert
- MEAs Expert
- Small PEM Electrolyzer Expert

DEVELOPING INDEPENDENT TECH, SERVING HYDROGEN SOCIETY

10 / years /
10 - year industry experience

3500 / m² /
3,500 - square - meter intelligent production base

32 / P /
Distributed in 32 provincial - level administrative regions across the country

28 / H /
28-item High -tech products

YHKC

Ningbo Zhongke Cotrun New Energy Science Technology Co., Ltd.

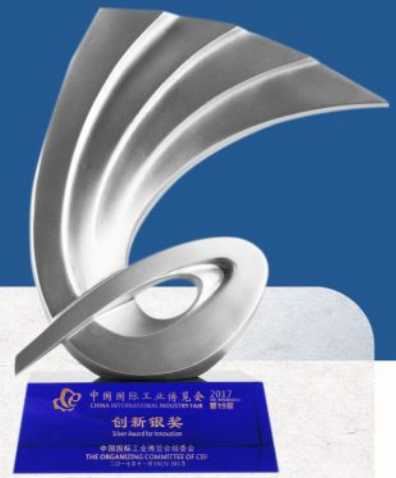
Ningbo Zhongke Cotrun New Energy Science Technology Co., Ltd. is a national high-tech enterprise and a specialized-sophisticated enterprise in Ningbo, with the core technology and team originated from Shanghai Advanced Research Institute, Chinese Academy of Sciences. The company specializes in the research and development of nanostructured electrocatalysts, membrane electrode assemblies (MEAs) for PEM fuel cells and water electrolyzers, focusing on the industrialization, application, and the solution for the customers. The company has over 20 invention patents, and participated in numerous national-level research programs.

The company has meticulously developed supported and unsupported electrocatalysts, MEAs for PEM fuel cell & water electrolysis, and electrolyzer products. These products demonstrate outstanding performance and have been widely utilized in various fields including fuel cells, PEM electrolysis, gas sensors, metal-air batteries, biotechnology and pharmaceutical chemistry. The key technical parameters have reached the international advanced levels. The company has won the First Prize of Technology Invention from the Chinese Renewable Energy Society, the China International Industry Fair New Innovation Award, and other honors.

"Developing Independent Tech., Servicing Hydrogen Energy Society" is the company's consistent business philosophy. Against the backdrop of the “dual -carbon" strategy, the company aims to break through the bottlenecks for key materials and realizes the large-scale application of the core components in hydrogen energy industry chain. The company will continue to carry forward the pioneering spirit, and is committed to providing our customers with "professional, high-quality, reliable, and cost-effective" one-stop application solutions with profound professional knowledge and rich practical experience, contributing to the development of the industry.

CORPORATEHONORS

- High-tech certified enterprise; Specialized and sophisticated new enterprise
- ISO-9001 quality management system certification
- IATF：16949 automotive quality management system certification
- The product won the Innovation Award at the China International Industry Fair
- China Hydrogen Energy Industry New Development Special Contribution Award

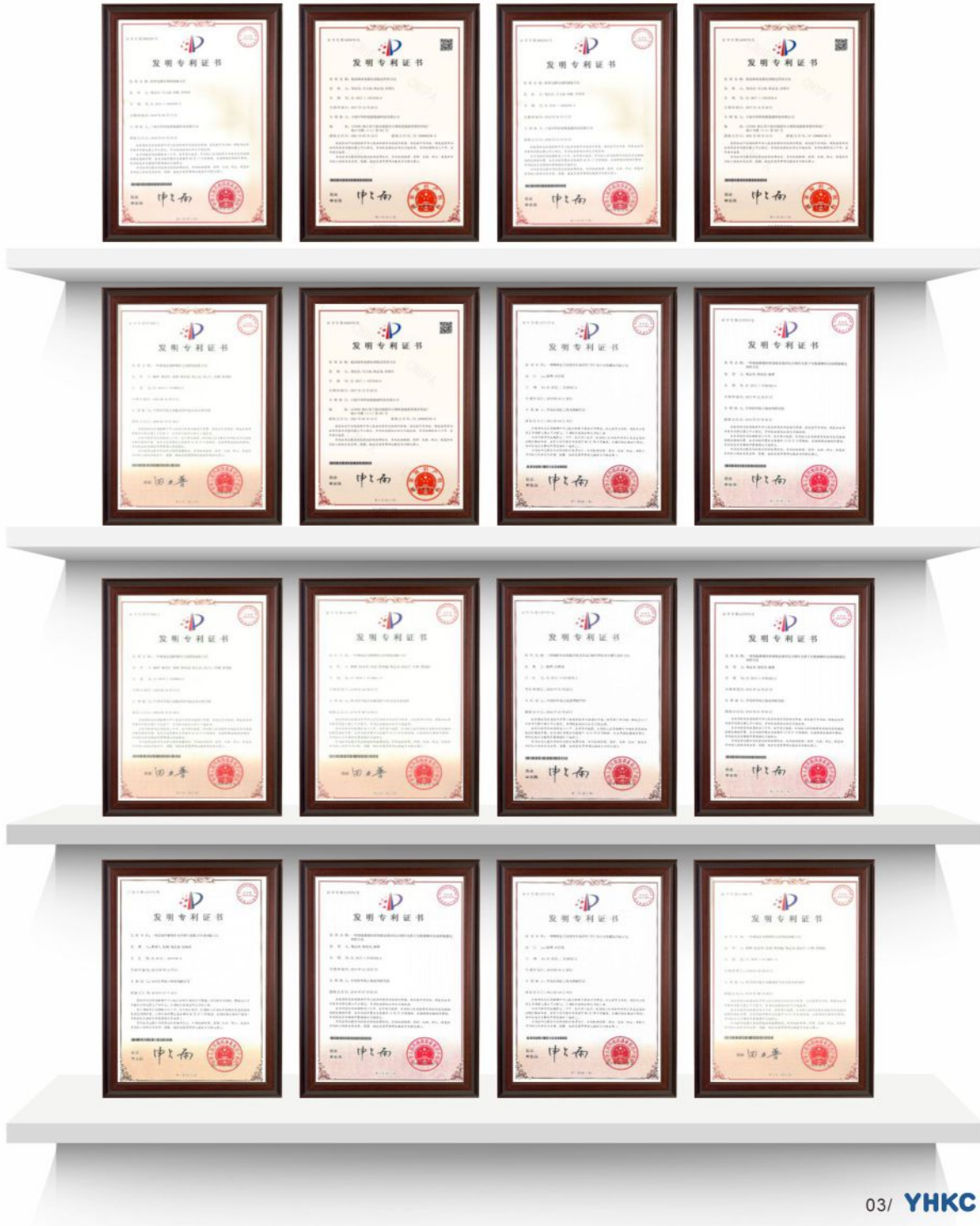


Innovation Award of China International Industry Fair

First Prize in S&T Award of China Renewable Energy Society

INVENTION PATENT

Over 20 invention patents with
independent intellectual property rights



Technical Features and Advancement

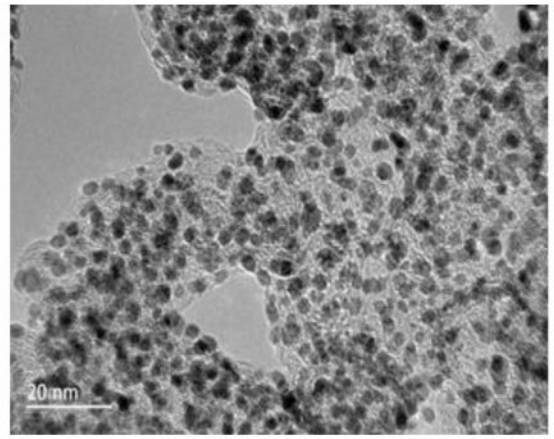
Break through the key challenges for the composition and structure consistencies for kg-scale batch production. The metal loadings and particle sizes can be precisely controlled.

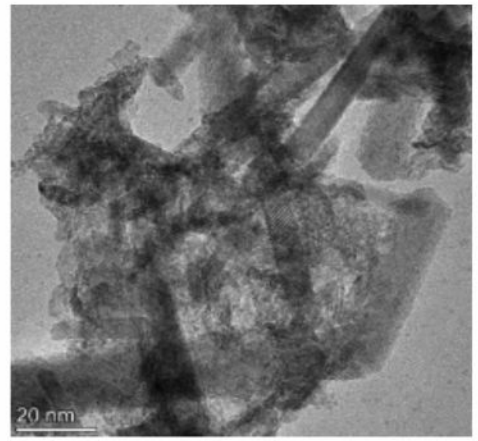
Catalysts	Specifications	Compositions	Average Particle Size (nm)	Electrochemical Active Area (ECSA, m²/g)	Mass Activity (MA, mA/mg)	Specific Surface Area (m²/g)
Pt/C	HiCaP40	40wt.%Pt, 60wt.%C	2.8	95	130	140
	HiCaP50	50wt.%Pt, 50wt.%C	3.3	85	130	110
	HiCaP60	60wt.%Pt, 40wt.%C	3.3	90	135	296
	HiCaP70	70wt.%Pt, 30wt.%C	3.3	55	134	85
PtCo	HiCaPC50	50wt.%Pt, 40wt.%C	5.2	65	350	110
Pt Black	HiCaP100	>95 wt.%Pt	5.0	≥32	80	35
Ir-Black	HiCaI100	>95 wt.%Ir	4.5	120	180	52
IrO2	HiCaIO100	~80 wt.%Ir	7.0	30	240	120
Low-Ir Catalyst	HiCaIO70	~56 wt.%Ir	4.5	60	180	75
Ir/C	HiCaI20	20wt.%Ir,80wt.%C	2.5	180	600	500
	HiCaI85	85wt.%Ir,15wt.%C	4.5	85	190	145
PtRu Black	HiCaPR100	65wt.%Pt, 35wt.%Ru	3.2	30	190	40
PtRu/C	HiCaPR60	40wt.%Pt,20wt.%Ru,40wt.%C	4.0	85	/	100
Ru-Black	HiCaR100	>95wt.%Ru	7.0	40	200	80

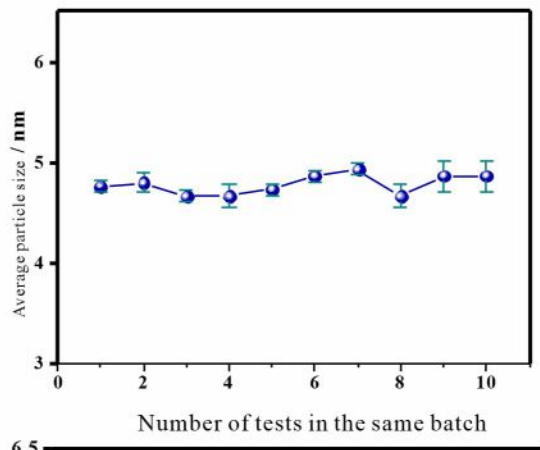
- Break through the key technologies for consistent of composition and structure in kilogram-scale batch production.
- The loading amount and particle size can be precisely controlled.

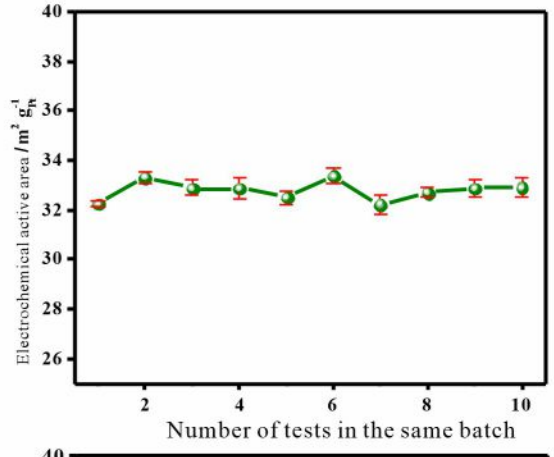
Excellent Uniformity & Consistency

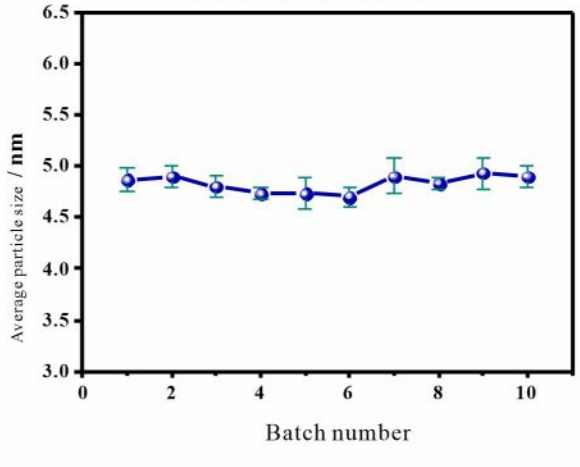
The nanostructured electrocatalysts present the features with high activity and durability to ensure the high quality of bulk-supplied products, meeting the customers' expectations and laying a solid foundation for product quality and mass production.

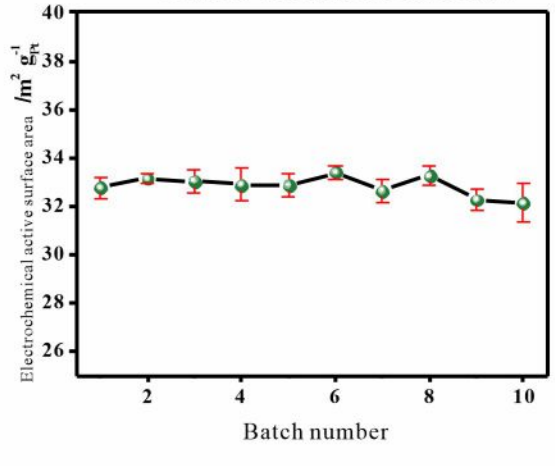












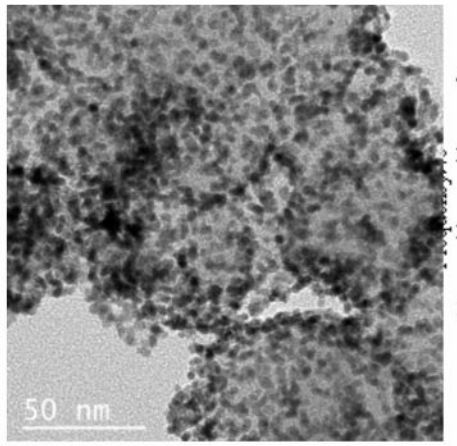
Platinum Supported on Carbon

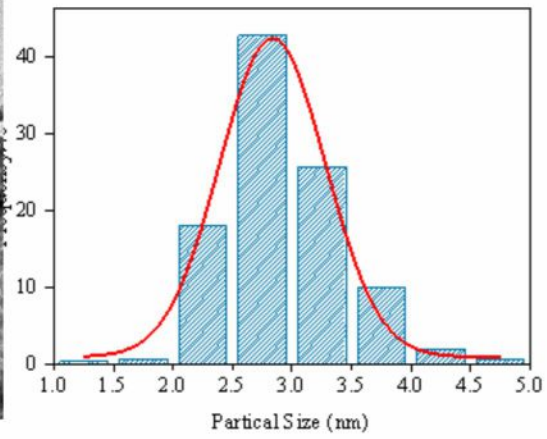
Technical Features and Advancement

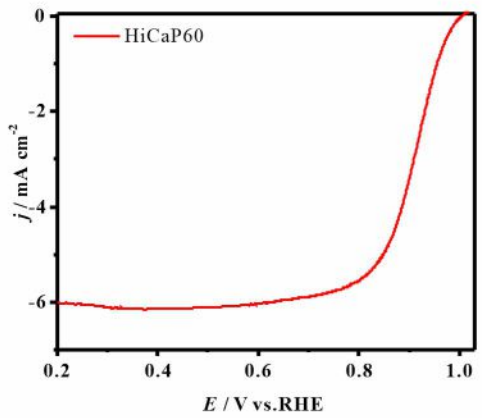
Kilogram-scale preparation for each batch.
Platinum loading supported on carbon is adjustable ranging from 1~70%.
Platinum nanoparticles feature with high uniformity with the standard difference of ±0.2 nm.
The unique lattice compressive stress enhances the activity and stability.

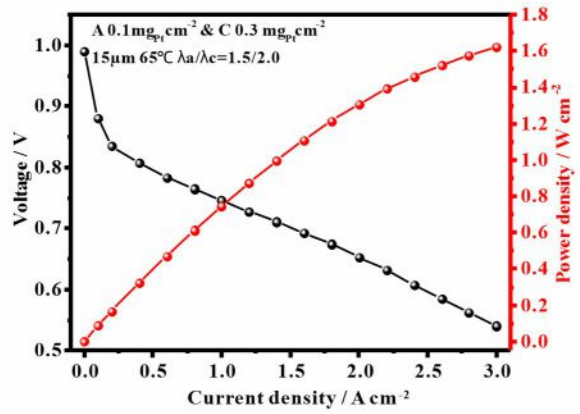
Application Scenarios
PEM fuel cells
PEM water electrolyer

Platinum-Carbon Catalyst









		Initial	30Kcycles
HiCaP40	ECSA/m^2 mg_{Pt}^{-1}	95	72
	MA/ $mAmg_{Pt}^{-1}$	130	108
	Voltage /0.8 A cm^{-2}	0. 712	0. 687
HiCaP50	ECSA/m^2 mg_{Pt}^{-1}	90	63
	MA/ $mAmg_{Pt}^{-1}$	130	109
	Voltage /0.8 A cm^{-2}	0. 744	0. 719
HiCaP60	ECSA/m^2 mg_{Pt}^{-1}	85	64
	MA/ $mAmg_{Pt}^{-1}$	135	106
	Voltage /0.8 A cm^{-2}	0. 765	0. 744
HiCaP70	ECSA/m^2 mg_{Pt}^{-1}	55	42
	MA/ $mAmg_{Pt}^{-1}$	134	114
	Voltage /0.8 A cm^{-2}	0. 762	0. 741

Referring to US DOE square-wave test standard

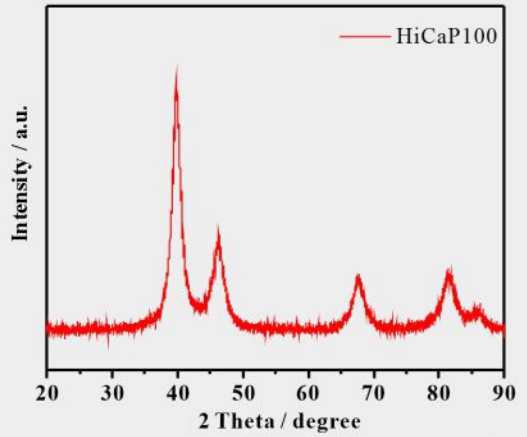
Platinum-Black Catalyst

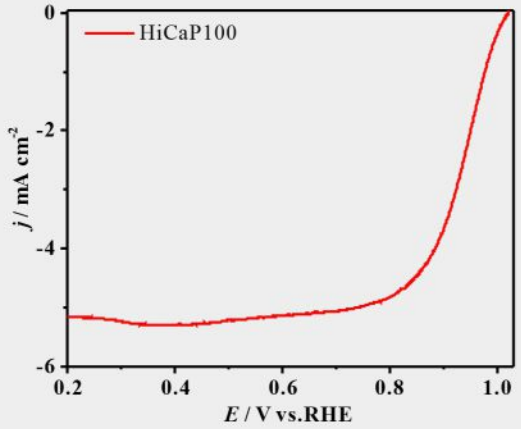
Technical Features and Advancement

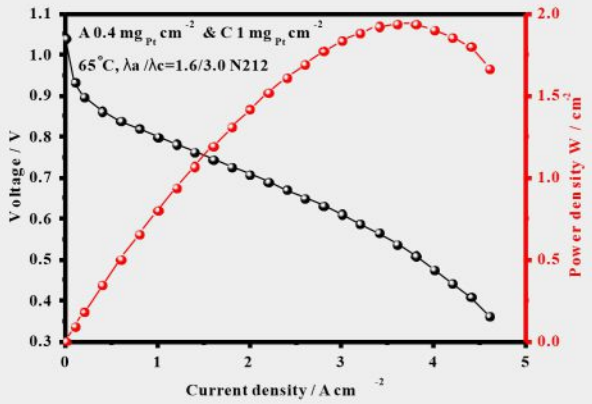
Kilogram-scale preparation for each batch
Particle size is uniform and adjustable from 4~10 nm.
Increased bulk density.
High ink dispersibility.

Application Scenarios
H2–O2 fuel cells
Cathode for PEM hydrogen generators
Electrochemical sensors

Platinum-Black Catalyst







Platinum-Ruthenium Catalyst

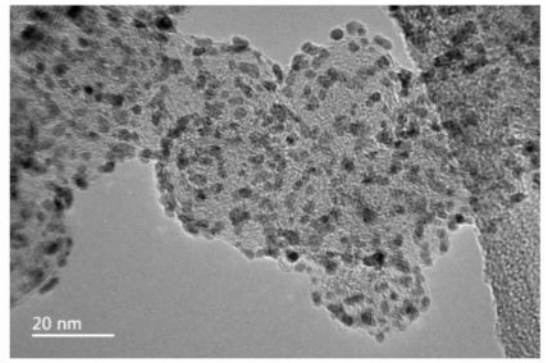
Platinum-Ruthenium Alloy Black

PtRu Alloy Supported on Carbon

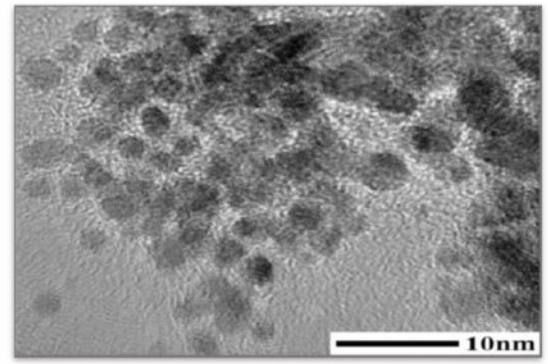
Technical Features and Advancement

Kilogram-scale preparation for each batch
High alloying degree, close to the theoretical value.
Uniform size of PtRu nanoparticles, with the standard difference of ±0.3 nm.

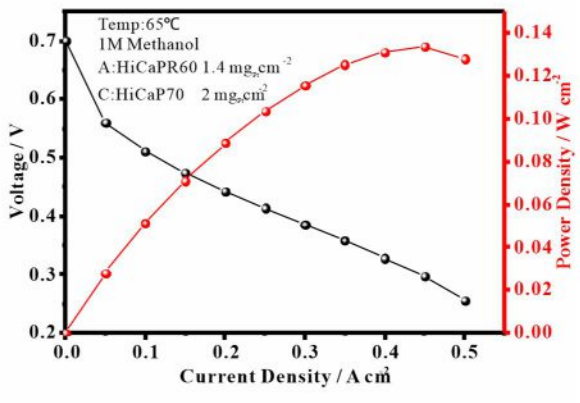
Application Scenarios
DMFC (Direct Methanol Fuel Cell)
Anodic CO-tolerant catalyst for PEMFC (Proton Exchange Membrane Fuel Cell)
Cathode catalyst for AEMWE (Alkaline Anion Exchange Membrane Water Electrolyzer)
Anode catalyst for AEMFC (Alkaline Anion Exchange Membrane Fuel Cell)

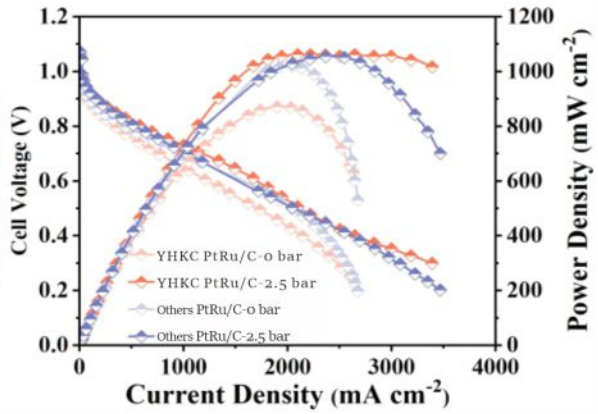


HiCaPR60



HiCaPR100





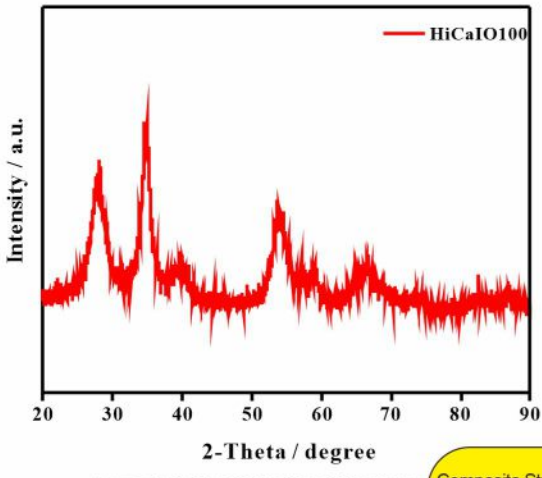
Unsupported Iridium Oxide

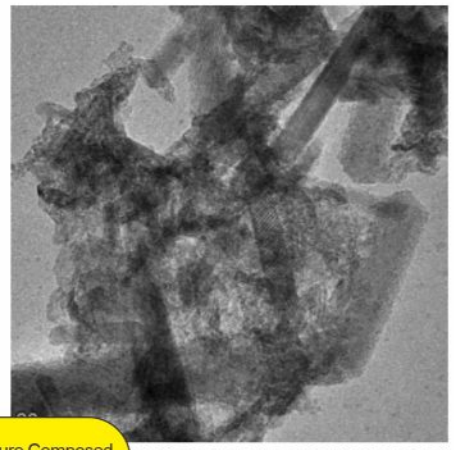
Technical Features and Advancement

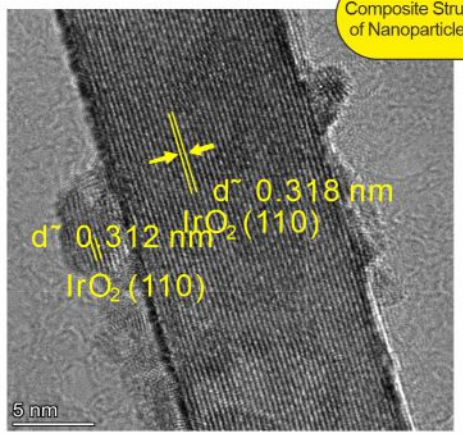
Kilogram-scale preparation for each batch
Surface hydroxylation treatment, issuing high dispersibility.
High specific surface area (> 100 m2/g).
Composite structure ensuring both high activity and stability

Unsupported Iridium Oxide

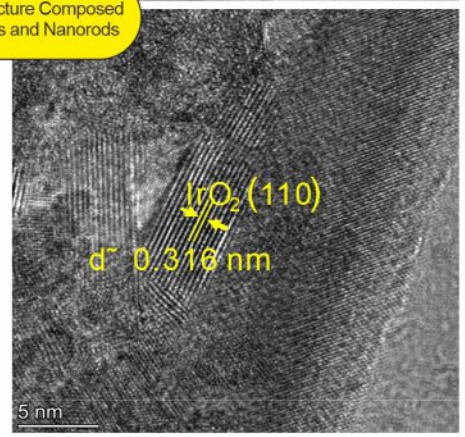
Application Scenarios
Anode Catalysts for PEM Water Electrolysis
Fuel Cell Reversal Tolerance

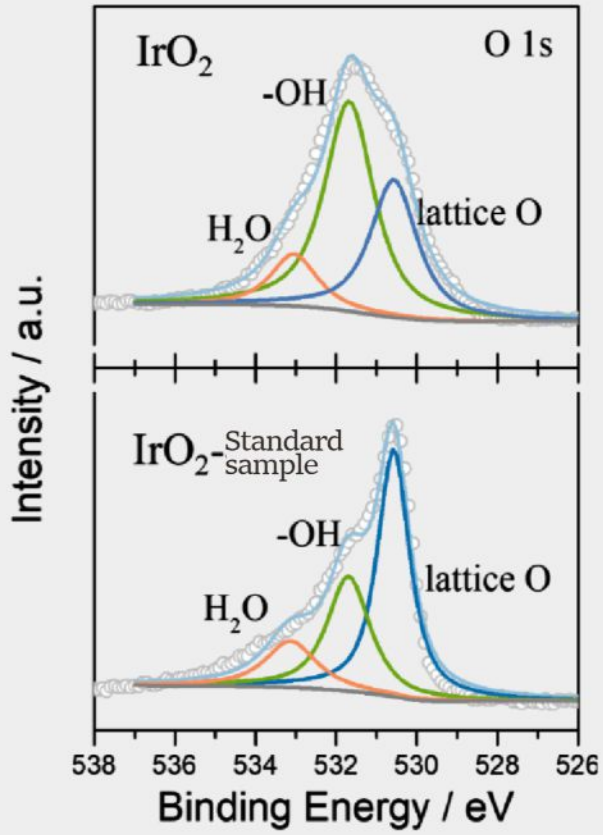


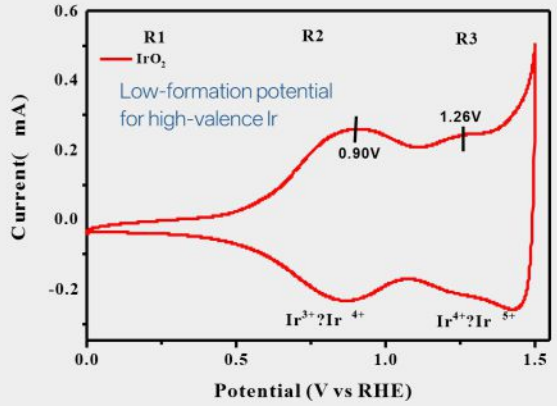


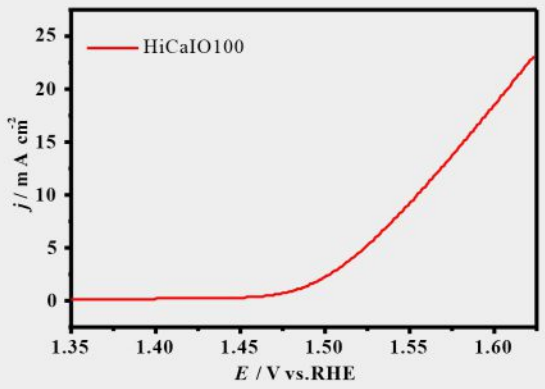


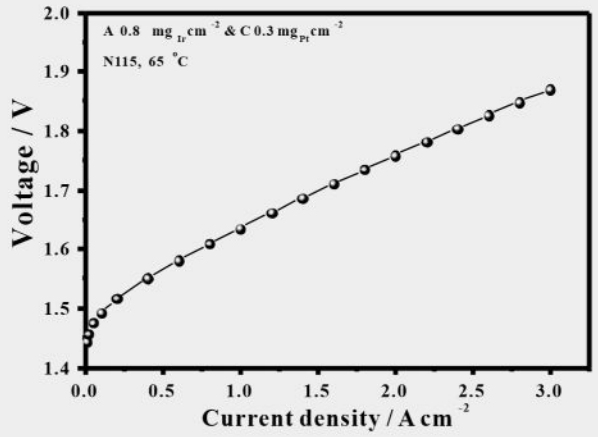
Composite Structure Composed of Nanoparticles and Nanorods

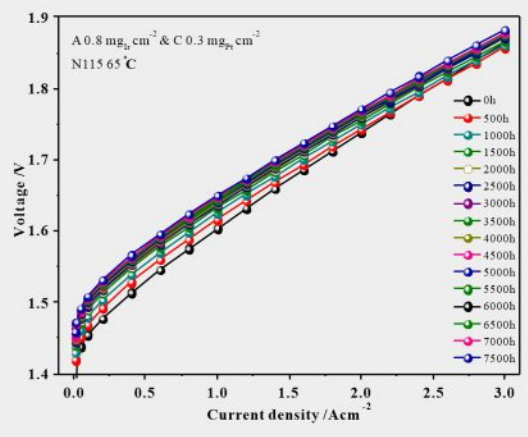












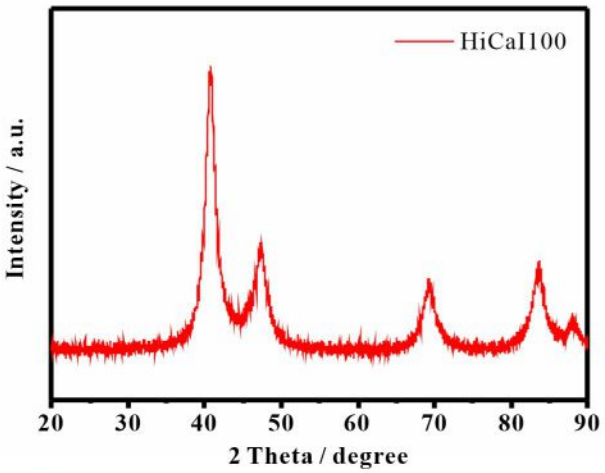
Unsupported Iridium Black

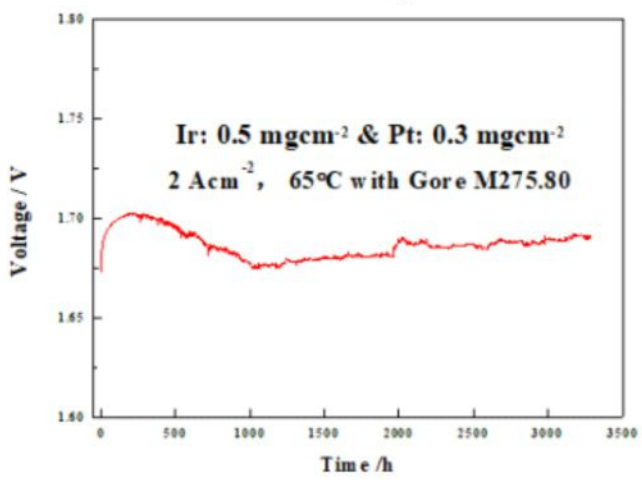
Technical Features and Advancement

500-gram-scale preparation for each batch
Oxygen evolution overpotential < 310 mV @ 10 mA cm -2 in 0.1 M HClO4.
Excellent stability with no decay over 3000 h testing.

Application Scenarios
PEM Water Electrolysis
Fuel Cell Reversal Tolerance

Unsupported Iridium Black





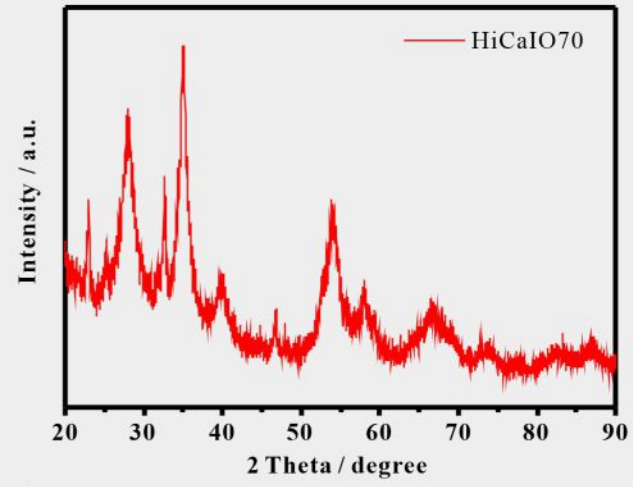
Low-Iridium Catalyst

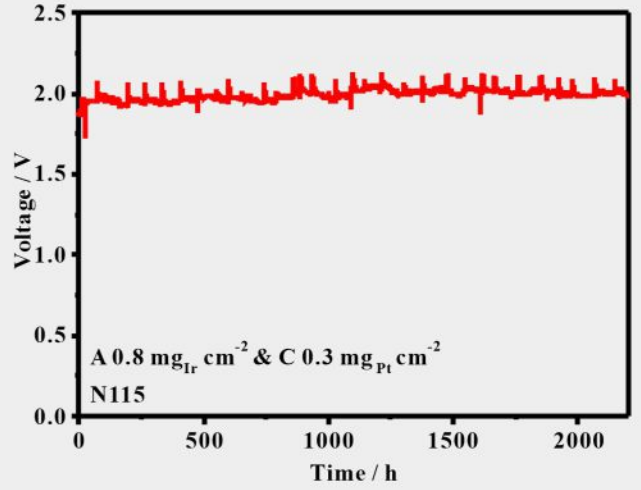
Technical Features and Advancement

500-gram-scale preparation for each batch
Oxygen evolution overpotential < 320 mV @ 10 mA cm-2 in 0.1 M HClO4
High stability with no decay over 3000 h testing

Application Scenarios
Hydrogen Production for Civil Use

Low-Iridium Catalyst





Platinum-Alumina Catalyst

Technical Features and Advancement

Highly dispersed Pt/ Al_2O_3 catalyst

This catalyst is a noble metal-based catalyst supported on activated alumina, primarily employed for hydrogenation reactions of aromatic aldehydes, aniline derivatives, and nitro-aromatic-aliphatic compounds. It also serves for catalytic deoxygenation in hydrogen gas or hydrogen-containing gas mixtures and widely utilized for hydrogen removal from oxygen gas and oxygen-containing gas mixtures.

Platinum-Alumina Catalyst

Metal Content
0.5% Pt (Content is optional)

Color
Dark grey

Carrier
γ-Al_2O_3

Carrier Size
Φ3 ~ 5 mm (Optional)

Carrier Specific Surface Area
≥300 m^2/g

Carrier Pore Volume
≥0.38 ml/g

Bulk Density
0.72 g/cm^2

Compressive Strength
≥90 N per pellet

Operating Temperature
Room temperature~300°C

Operating Pressure
Atmospheric pressure ~15 Mpa

Residual Oxygen after Purification
≤1 ppm (Maximum up to 0.1 ppm)

Service Life
≥3 years

Application Scenarios
Removal oO_2、O_3、NO_x、C_2H_2 and other hydrocarbon mixture

Palladium deoxidation catalyst

Palladium deoxidation catalyst

Technical Features and Advancement

Highly dispersed Pd deoxidation catalyst

The catalyst is noble metal-based catalyst supported on activated alumina, primarily employed for catalytic deoxygenation in hydrogen-containing gas mixtures, also widely utilized for hydrogenation-deoxygenation in nitrogen and other inert gases.

Principle:

The oxygen impurities in the gas react with hydrogen to form water when the feed gas passes through the catalyst, there by achieving deoxygenation.

Metal Content
0.5% Pd(Content is optional)

Color
grey

Carrier
γ-Al_2O_3

Carrier Size
Φ1.6 ~2.5 mm (Size is optional)

Carrier Specific Surface Area
≥300 m^2/g

Carrier Pore Volume
≥0.38 ml/g

Bulk Density
0.72 g/cm^2

Compressive Strength
≥90 N per pellet

Operating Temperature
Room temperature~650°C

Operating Pressure
Atmospheric pressure ~30 Mpa

Residual Oxygen after Purification
≤1 ppm (Maximum up to 0.1 ppm)

Service Life
≥3 years

Application Scenarios
Removal oO_2、O_3、NO_x、C_2H_2 and other hydrocarbon mixture

Other nano-precious metal catalysts

Iridium-Carbon

Ruthenium Oxide

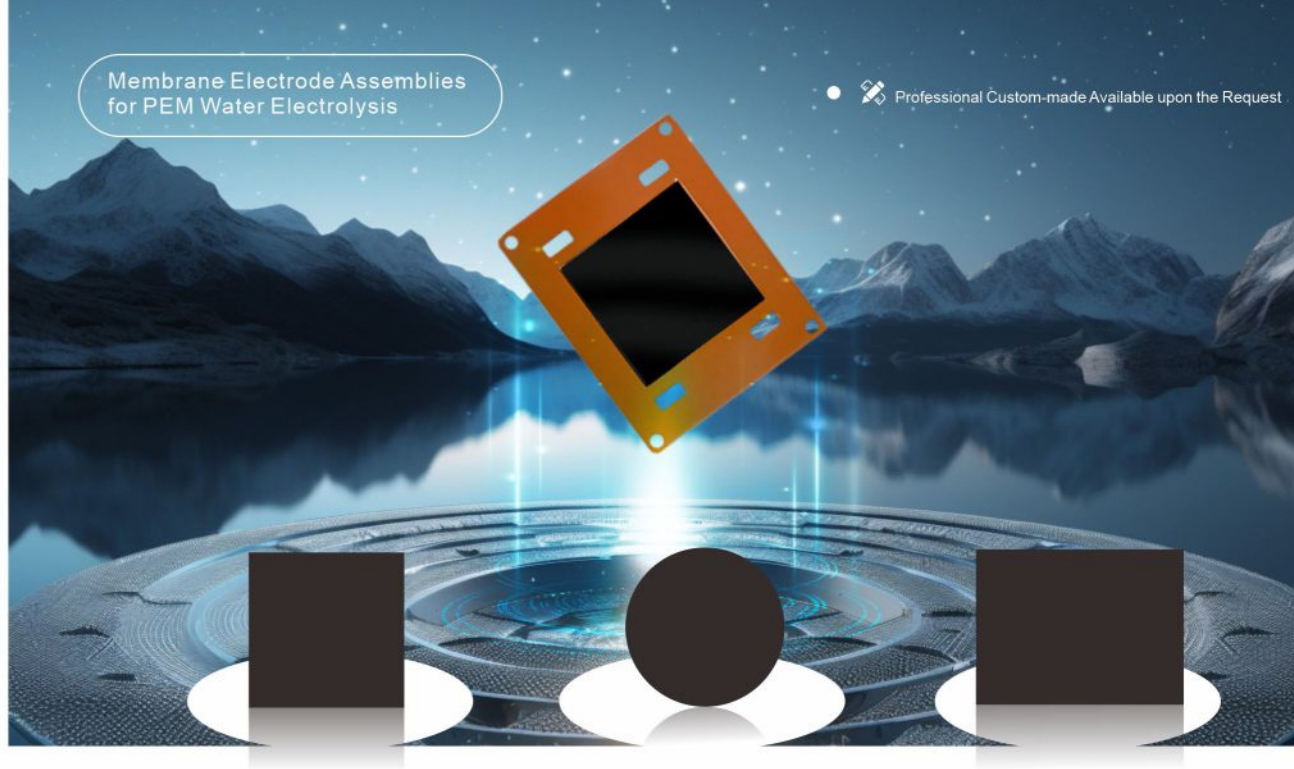
Ruthenium Black

Platinum-Nickel

Platinum-Cobalt

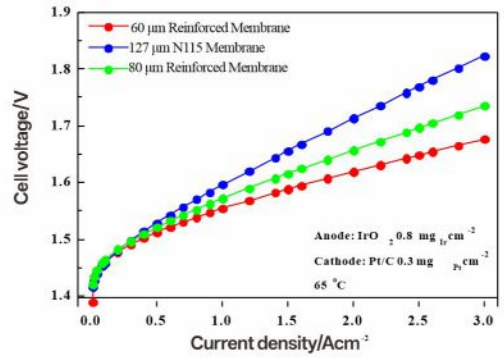
Palladium-Carbon

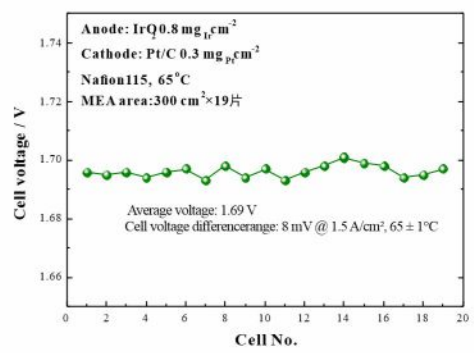
Iridium-Ruthenium Black

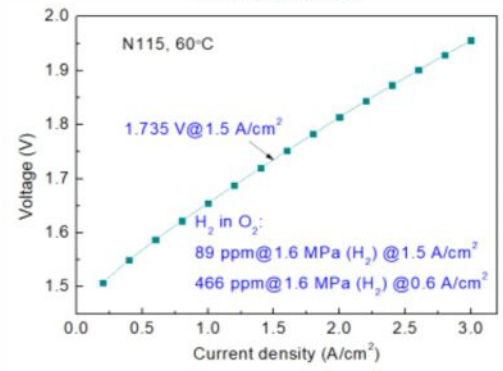


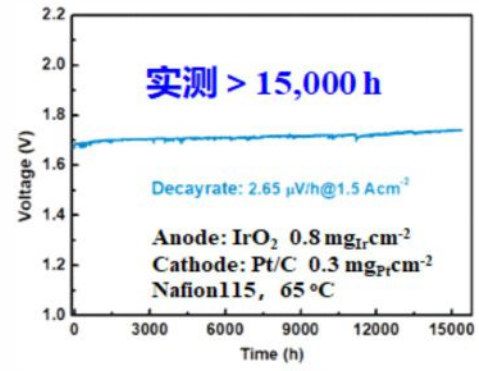
Product Features

Annual production exceeds 10,000 m2. The maximum effective area of the MEAs is over 3600 cm^2, and the maximum edge-sealing size is 100x100 cm^2.
The precious metal usage within the MEAs can be as low as 0.8 mg/cm^2.
The MEAs feature high activity, stability, consistency and low precious metal loading and have been utilized in MW-level stack





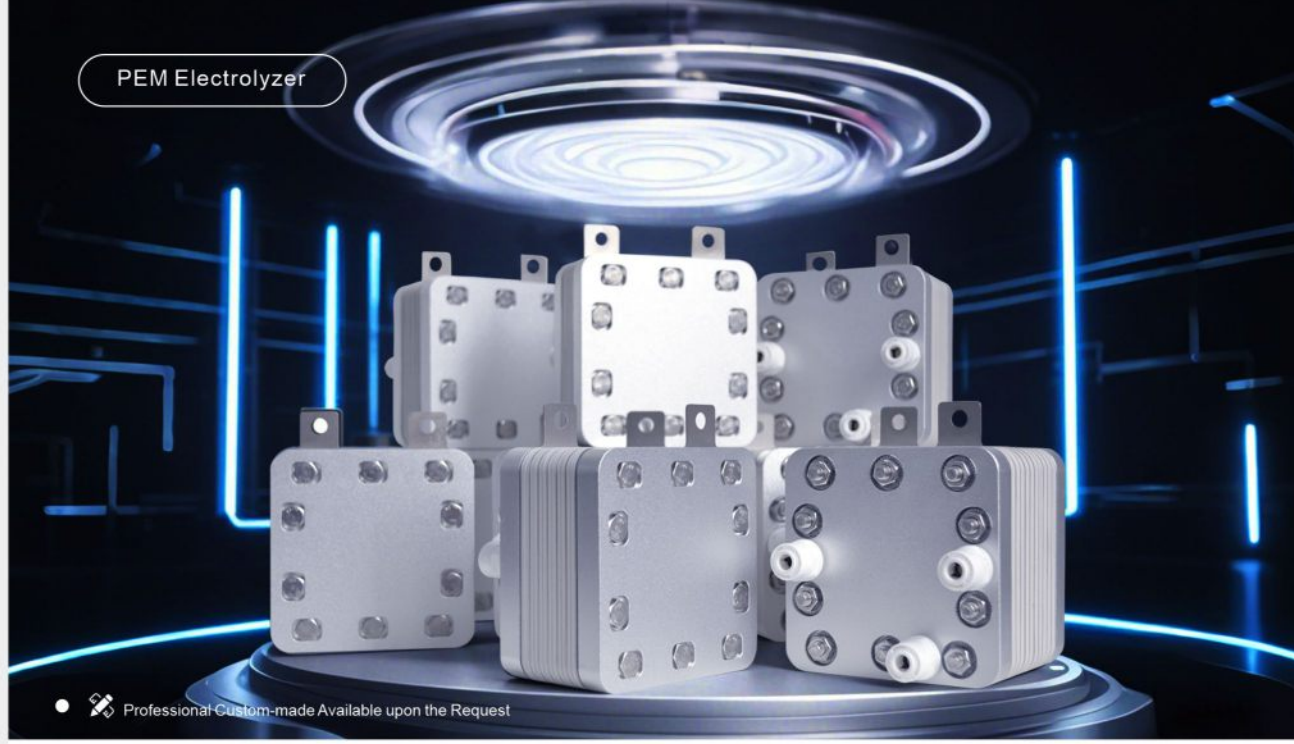




Standard test fixture

- Unique platinum-plated flow field and high-purity titanium diffusion layer;
- High-precision positioning and easy to maintain tight sealing;
- The test results are highly accurate and have good stability.

- Dedicated high-performance and long-durability membrane electrode;
- Easy to learn, practical, and with good comparability;
- Support customization of effective area and component characteristics.



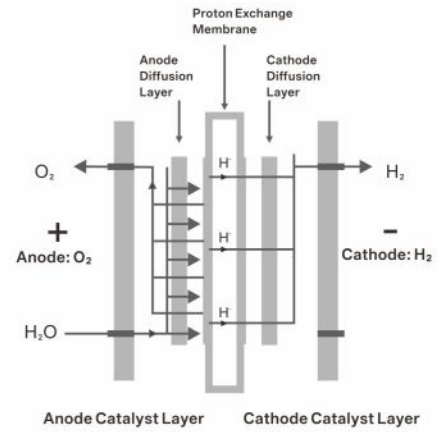
Long lifetime

High electrolysis efficiency

99.999% High hydrogen purity (99.999%)

High performance

High safety



Independently master the core technologies for PEM water electrolysis

PEM water-electrolysis technology can accommodate the intermittency of renewable energy sources such as photovoltaic and wind energy. It is a premier technology for coupling with renewable energy to produce green hydrogen and one of the crucial technologies for advancing clean energy landscape.

Compared with traditional alkaline water electrolysis and other technologies, PEM water-electrolysis features high efficiency, high-purity hydrogen, rapid start-up, and strong fluctuating adaptability (well -suited to couple renewable energy). Moreover, the compact structural design significantly saves the space and is highly adaptable for scenarios with limited space.

CASI New Energy Technology (Ningbo) Co., Ltd. meticulously selects the raw materials, fine-optimizes production processes, and rigorously controls every step of the workflow, striving for perfection at every juncture. Through continuous efforts, the company aims to become a global leading supplier of nanostructured electrocatalysts and PEM based MEAs, contributing to the development of the green hydrogen industry and facilitating the global energy structure's transition towards cleanliness and sustainability.

PEM Water Electrolyzer: 1 Nm³/H

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	KA1
Hydrogen Production Rate	1mN³/H
Oxygen Production Rate	0.5Nm³/H
Constant Current (A)	400
Circulating Water Temperature (°C)	25-70
Circulating Water Flow	1L/H
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	3.5Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	300*300*80
Effective Area of MEA	200*200 (6)
Application Fields	Fuel cell system testing, Fuel cell backup power supply, Combined heat and power, Semiconductor, Multi-energy complementary independent micro - grids, etc.

PEM Water Electrolyzer: 0.6Nm³/H

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	KA0.60
Hydrogen Production Rate	0.6Nm³/H
Oxygen Production Rate	0.3Nm³/H
Constant Current (A)	230
Circulating Water Temperature (°C)	25-70
Circulating Water Flow	0.7L/H
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	3.5Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	300*300*80
Effective Area of MEA	200*200 (6)
Application Fields	Fuel cell system testing, Fuel cell backup power supply, Combined heat and power, Semiconductor, Multi-energy complementary independent micro - grids, etc.

PEM Water Electrolyzer: 6000 Nml/Min

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KB6000
Hydrogen Production Rate	6000Nml/Min
Oxygen Production Rate	3000Nml/Min
Constant Current (A)	80
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	3000ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	1Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	176*126*97
Effective Area of MEA	106*78 (10)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 4800 Nml/Min

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KB4800
Hydrogen Production Rate	4800Nml/Min
Oxygen Production Rate	2400Nml/Min
Constant Current (A)	80
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	2400ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	1Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	176*126*84
Effective Area of MEA	106*78(8)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 3600 Nml/Min

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KB3600
Hydrogen Production Rate	3600Nml/Min
Oxygen Production Rate	1800Nml/Min
Constant Current (A)	80
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	2000ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	1Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	176*126*71
Effective Area of MEA	106*78 (6)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 2400 Nml/Min

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

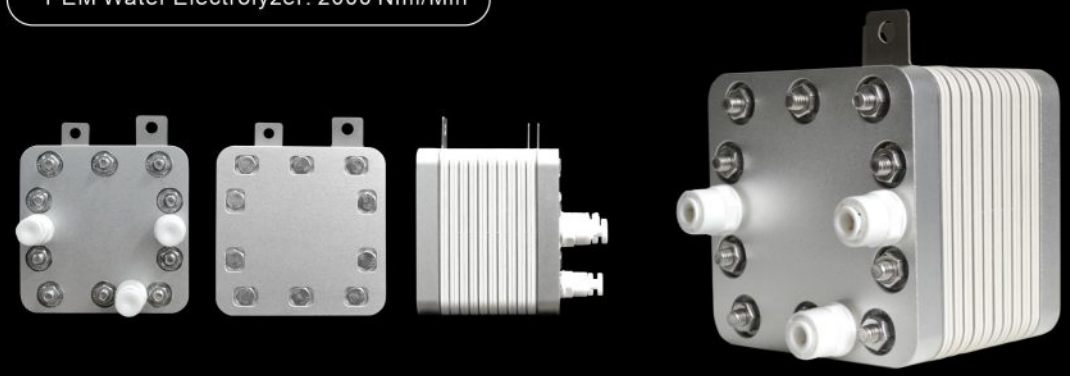
High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KB2400
Hydrogen Production Rate	2400Nml/Min
Oxygen Production Rate	1200Nml/Min
Constant Current (A)	80
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	600ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	1Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	176*126*59
Effective Area of MEA	106*78(4)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 2000 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

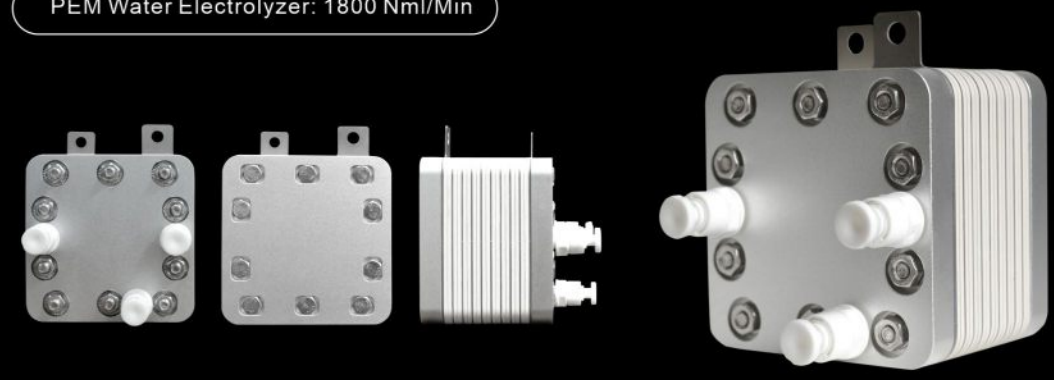
High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KC2000
Hydrogen Production Rate	2000Nml/Min
Oxygen Production Rate	1000Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	220ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS – Anode Water	≤1
TDS – Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	93*93*79
Effective Area of MEA	56*56 (10)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 1800 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

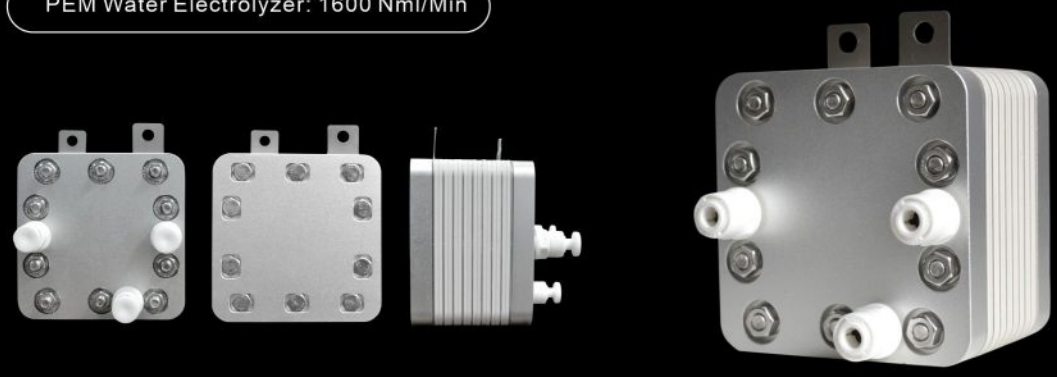
High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KC1800
Hydrogen Production Rate	1800Nml/Min
Oxygen Production Rate	900Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	200ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS – Anode Water	≤1
TDS – Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	93*93*73
Effective Area of MEA	56*56(9)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 1600 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

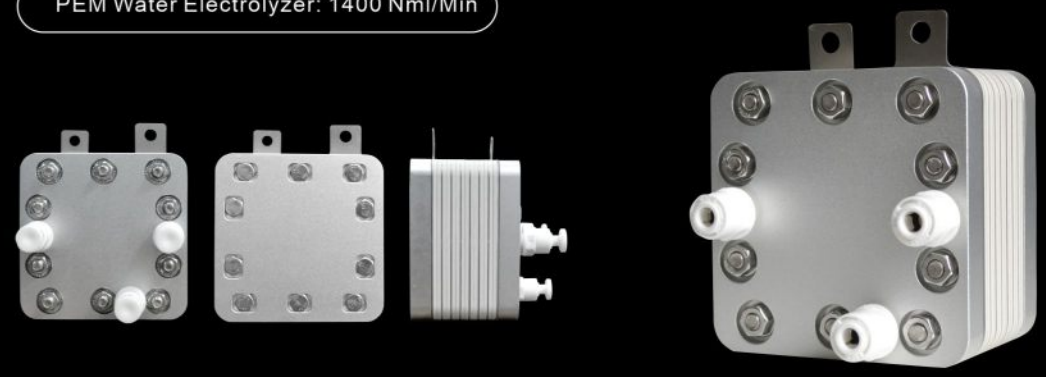
High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KC1600
Hydrogen Production Rate	1600Nml/Min
Oxygen Production Rate	800Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	180ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS – Anode Water	≤1
TDS – Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	93*93*67
Effective Area of MEA	56*56 (8)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 1400 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

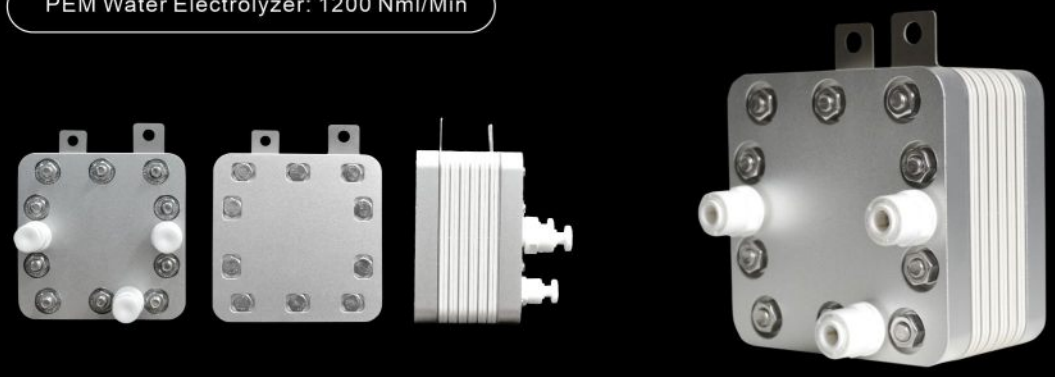
High pressure resistance: Capable of producing high-pressure hydrogen

High current density, Low power consumption, stable voltage

Safe and reliable, Stable performance

Model	KC1400
Hydrogen Production Rate	1400Nml/Min
Oxygen Production Rate	700Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	160ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS – Anode Water	≤1
TDS – Cathode Water	/
Single - cell Voltage (v)	1.75-2.5
Dimensions (excluding Lugs)	93*93*61
Effective Area of MEA	56*56(7)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 1200 Nml/Min

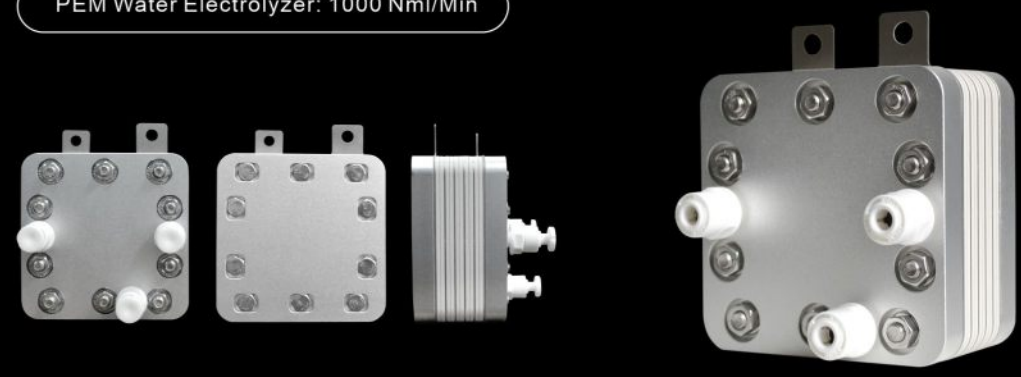


- Professional Custom-made Available upon the Request

- Independent R & D and production: Superior materials, Exquisite processes
- High purity hydrogen, Long service life
- High pressure resistance: Capable of producing high-pressure hydrogen
- High current density , Low power consumption, stable voltage
- Safe and reliable , Stable performance

Model	KC1200
Hydrogen Production Rate	1200Nml/Min
Oxygen Production Rate	600Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	140ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	93*93*55
Effective Area of MEA	56*56 (6)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 1000 Nml/Min

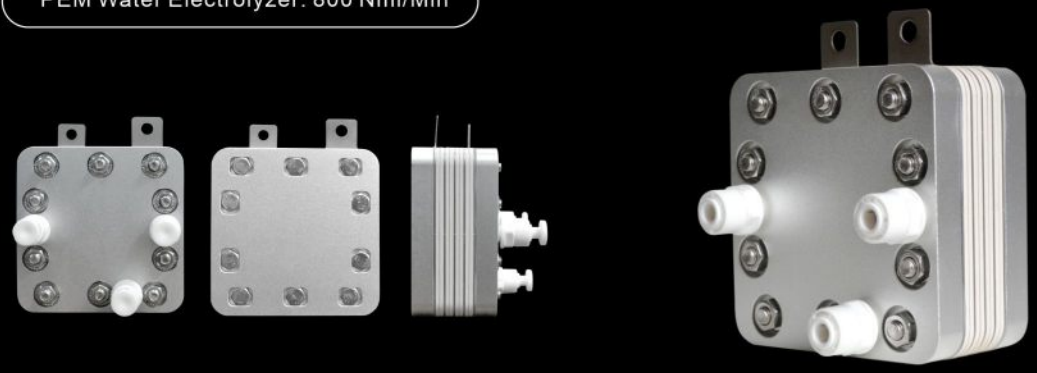


- Professional Custom-made Available upon the Request

- Independent R & D and production: Superior materials, Exquisite processes
- High purity hydrogen, Long service life
- High pressure resistance: Capable of producing high-pressure hydrogen
- High current density , Low power consumption, stable voltage
- Safe and reliable , Stable performance

Model	KC1000
Hydrogen Production Rate	1000Nml/Min
Oxygen Production Rate	500Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	140ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	93*93*49
Effective Area of MEA	56*56(5)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 800 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

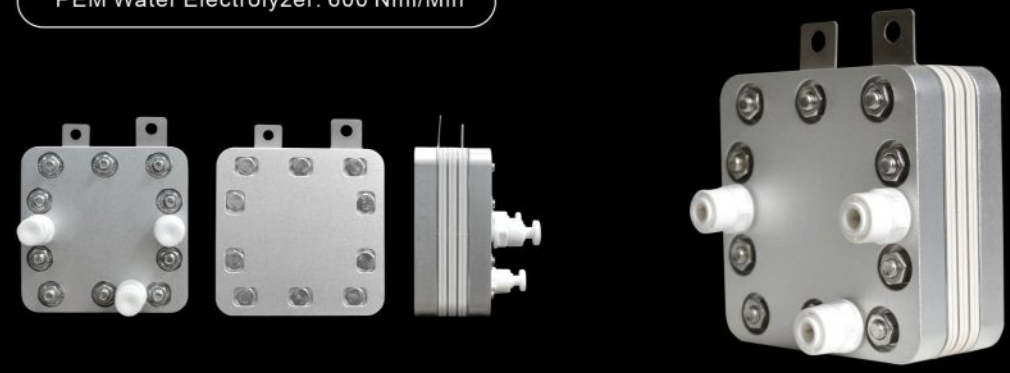
High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	KC800
Hydrogen Production Rate	800Nml/Min
Oxygen Production Rate	400Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	120ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	93*93*43
Effective Area of MEA	56*56 (4)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 600 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

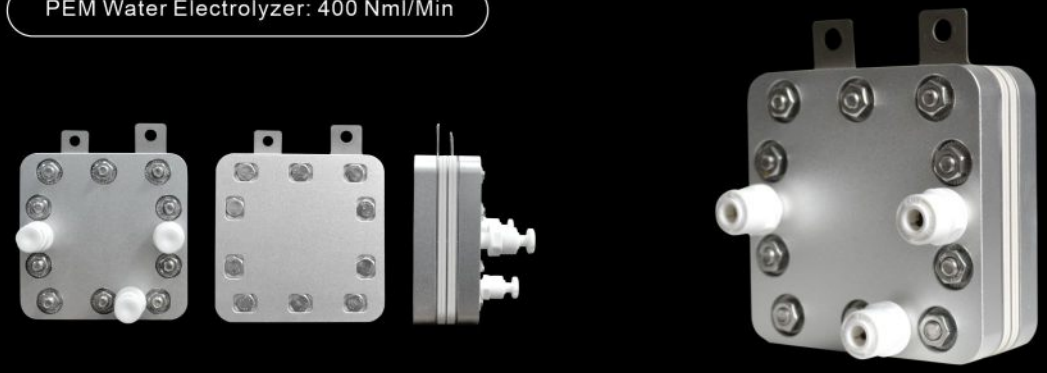
High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	KC600
Hydrogen Production Rate	600Nml/Min
Oxygen Production Rate	300Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	100ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	93*93*37
Effective Area of MEA	56*56(3)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 400 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	KC400
Hydrogen Production Rate	400Nml/Min
Oxygen Production Rate	200Nml/Min
Constant Current (A)	30
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	80ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	93*93*31
Effective Area of MEA	56*56 (2)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 300 Nml/Min

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	CA300
Hydrogen Production Rate	300Nml/Min
Oxygen Production Rate	150Nml/Min
Constant Current (A)	20
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	60ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	74*74*39
Effective Area of MEA	53.5*53.5(2)
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 150 Nml/Min

- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

High purity hydrogen, Long service life

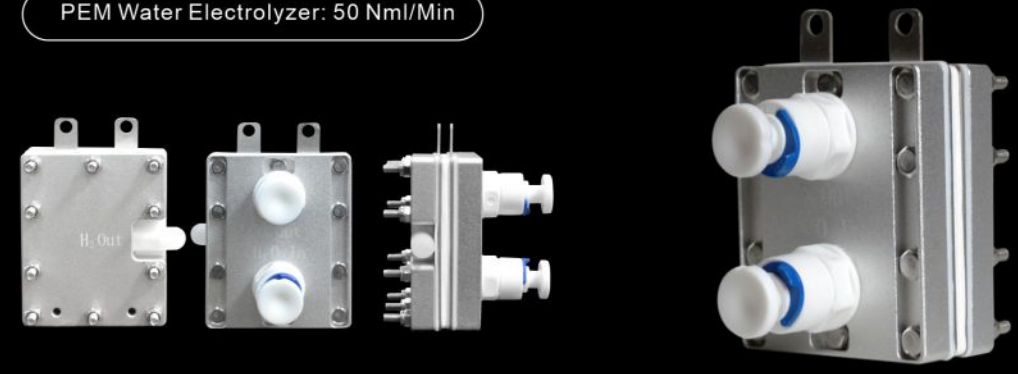
High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	CA150
Hydrogen Production Rate	150Nml/Min
Oxygen Production Rate	75Nml/Min
Constant Current (A)	20
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	50ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	74*74*23
Effective Area of MEA	53.5*53.5
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.

PEM Water Electrolyzer: 50 Nml/Min



- Professional Custom-made Available upon the Request

Independent R & D and production: Superior materials, Exquisite processes

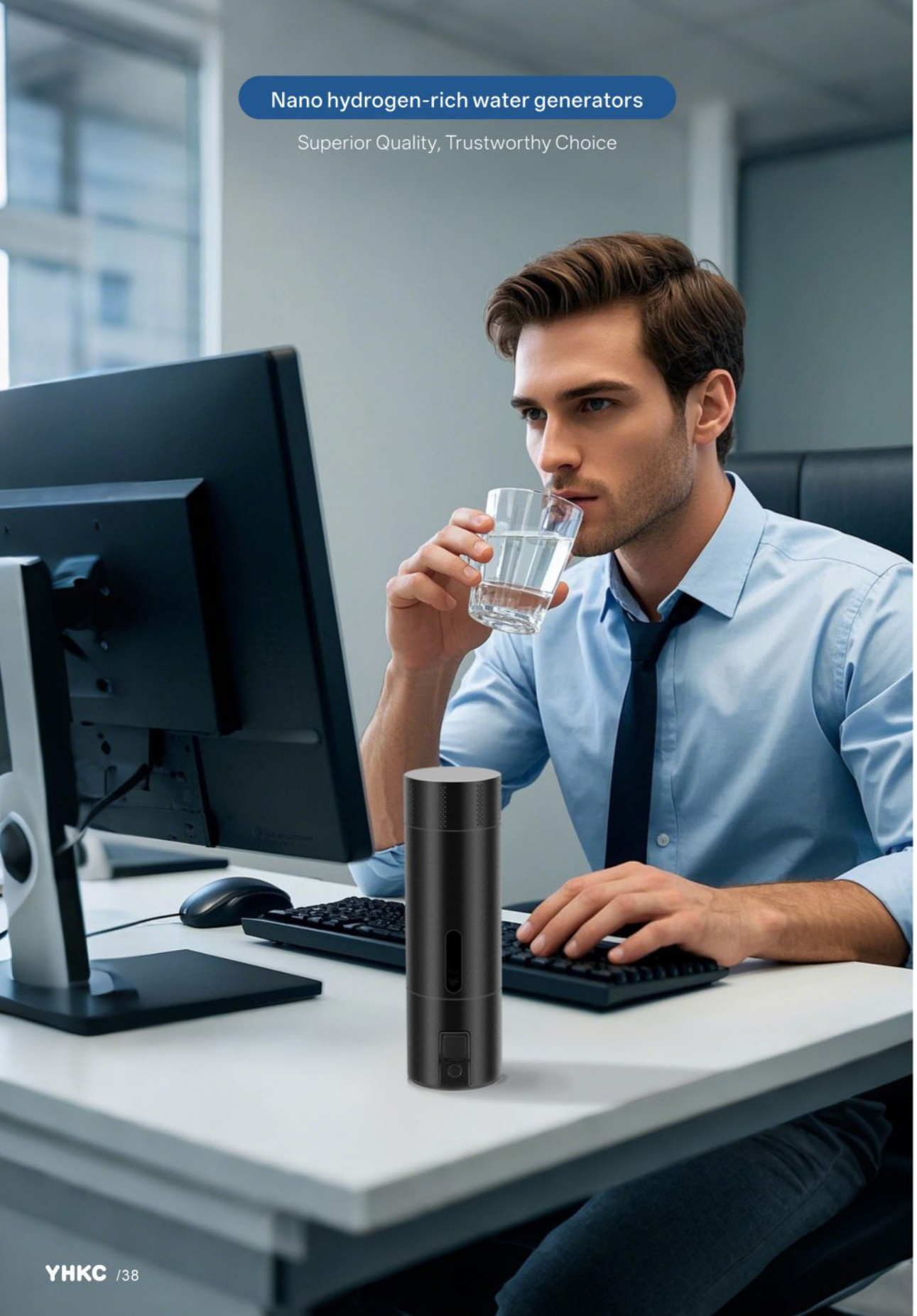
High purity hydrogen, Long service life

High pressure resistance: Capable of producing high-pressure hydrogen

High current density , Low power consumption, stable voltage

Safe and reliable , Stable performance

Model	CA050
Hydrogen Production Rate	50Nml/Min
Oxygen Production Rate	25Nml/Min
Constant Current (A)	12
Circulating Water Temperature (°C)	25-45
Circulating Water Flow	30ml/Min
Circulation Mode	Water Pump Circulation
Hydrogen Purity (%)	99.99
Water Electrolysis Method	MEA
Maximum Pressure Resistance	0.8Mpa
TDS — Anode Water	≤1
TDS — Cathode Water	/
Single - cell Voltage (v)	1. 75-2.5
Dimensions (excluding Lugs)	58*48*23
Effective Area of MEA	43*33
Application Fields	The fuel and carrier gas for gas chromatography (GC), reaction gas for electrolytic conductivity detector (ELCD) and atomic emission spectrometry detector (ED), hydrogen-rich water generator; hydrogen-oxygen generator, etc.



Nano hydrogen-rich water generators


NNHW210-SV


NNHW210-BL


NNHW210-RG


NNHW210-BK


NNHW210-GS-SV


NNHW210-GS-BL


NNHW210-GS-RG


NNHW210-GS-BK


NNHW210-JC-WH


NNHW210-JC-GR


NNHW210-JC-BK

2500ppb

in 5 min

5000ppb

in 10 min

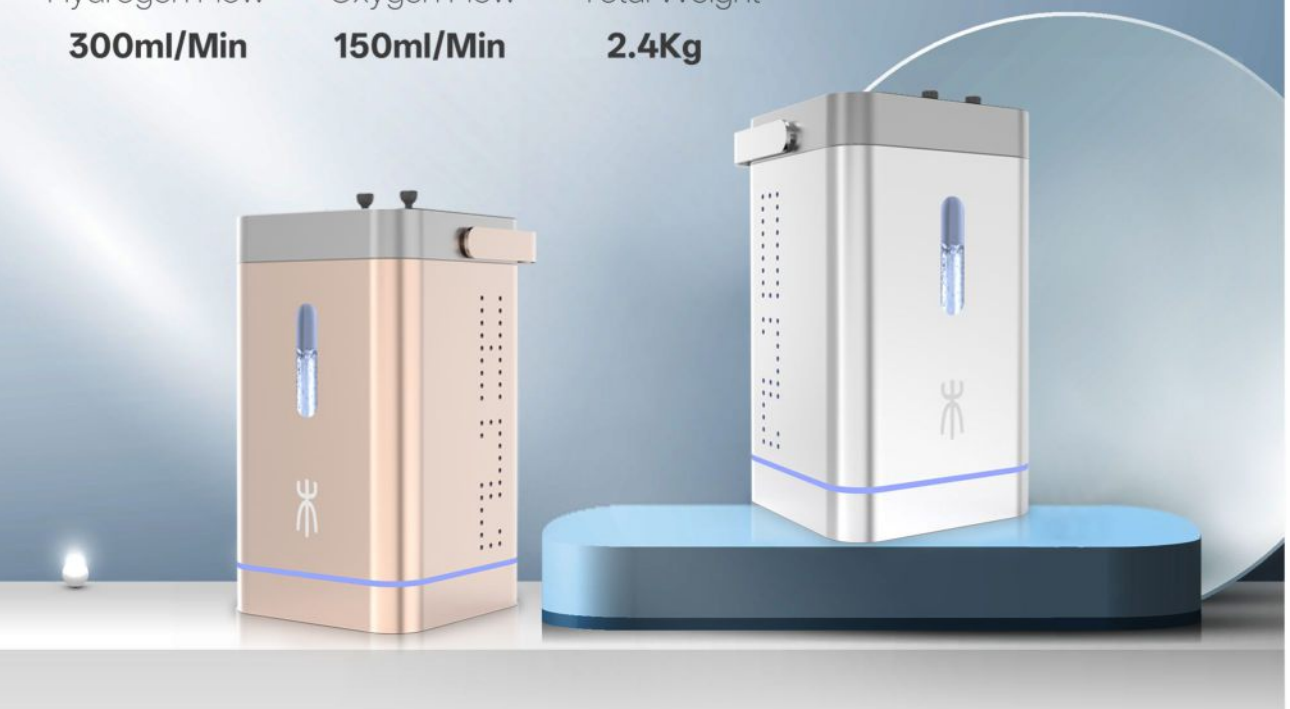
PRODUCT PARAMETER

Product Brand YHKC	**Product Name** Nano Hydrogen Water Generator
Product Model NNHW210-xx /NNHW210-LH-xx/ NNHW210-GS-xx/NNHW210-JC-xx	**Battery Capacity** 1800mAh/3.7V
Single Electrolysis Time 5 minutes	**Number of Electrolysis Cycles on a Full Charge** 25 - 30 times
Single Hydrogen Production Amount 2500ppb	**Hydrogen Production Amount for 2 - 3 Times** Above 5000ppb
Hydrogen Production Technology PEM Hydrogen-Oxygen Separation MEA	**Proton Exchange Membrane** DuPont N117, USA
Product Dimensions ϕ61*200mm	**Capacity** 210mL
Suitable Water Quality Purified water / Mineral water / Purified water	**Material** Food - grade PC + Aluminum alloy

PORTABLE HYDROGEN INHALER

Convenient to carry and travel, use anytime, anywhere

Hydrogen Flow	Oxygen Flow	Total Weight
300ml/Min	**150ml/Min**	**2.4Kg**



Portable Hydrogen Inhaler Series

STRONGER HEAT DISSIPATION

Stronger heat dissipation with abundant holes

INDEPENDENT GAS OUTLETS

Independent hydrogen and oxygen outlets

PORTABLE

Compact and portable design

PRODUCT PARAMETER

Product Brand YHKC	**Product Name** 450mL Portable Hydrogen - Oxygen Generator
Product Model HOR450-GD/HOR450-SV	**Product Dimensions** 11*11*19.3cm
Gross Weight 2.4kg	**Hydrogen - Oxygen Mixed Inhalation** 450mL/min
Hydrogen Flow Rate 300mL/min	**Oxygen Flow Rate** 150mL/min
Power Adapter AC110~240V/50~60HZ	**Power** 90W
Adjustable Time 1H/2H/3H	**Hydrogen Purity** 99.99%
Hydrogen Production Principle Portable Hydrogen Water Sprayer Series	**Suitable Water Temperature** Room temperature
Suitable Water Quality Purified water	**Warranty** 2years
Membrane Electrode DuPont N117 Membrane + Nano Platinum Coating, USA	**Color** Rose Gold / Space Silver

Hydrogen Water Sprayer

Five Key Skin - caring Features

ng penetration

The diameter of hydrogen-rich small-molecule water is 5 μm, less than that of human cells with 25 μm, therefore the hydrogen-rich small-molecule water can easily penetrate through the cell layer, effectively moisturizing.

Pure natural

Zero additives. Applicable even for children's delicate skin. Relieve your overused eyes as well.

Antioxidant

Hydrogen concentration up to 1000 ppb, highly effective antioxidation.

Mini version

Lipstick size, convenient in your bag or pocket.

Recycling utilization

One-time purchase for long-term use: 2-year quality guarantee.

PRODUCT PARAMETER

Product Brand YHKC	**Product Name** Portable Hydrogen Water Nebulizer
Product Dimensions ϕ30*136mm	**Hydrogen Concentration** ≥1000ppb
Battery Specification 3.7V/430mAh	**Battery Type** Polymer Lithium - ion Battery
Power Adapter ≤5V Mobile Phone Charger	**Charging Method** USB & Type - C Port Charging
Charging Time Approximately 1.5h	**Single Hydrogen Production Time** 1 min
Number of Hydrogen Production Cycles on a Full Charge Approximately 50 times	**Water Tank Capacity** 20ml
Suitable Water Quality Mineral water / Tap water / Purified water	**Material** German produced PC + ABS

Testing Reagent for Dissolved Hydrogen Concentration

YHKC

Ningbo Zhongke Cotrun New Energy Science Technology Co., Ltd.

New-energy enterprise focused on the development of high-performance precious metal based nanocatalysts with independent intellectual property rights.

NOBLE METAL-BASED NANOCATALYSTS

PRODUCT PARAMETER

Product Brand	**Product Name**
YHKC	Dissolved Hydrogen Concentration Testing Reagent
Model	**Hydrogen Concentration**
HWPDJ - 21	1 drop ≈ 100ppb, approximately 400 drops/bottle