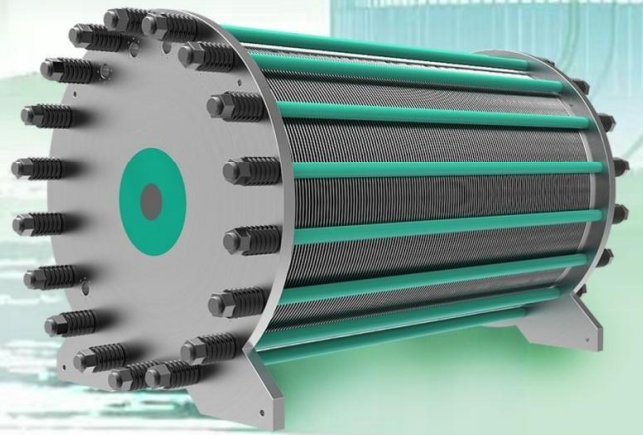




China Hydrogen Energy Corporation Limited

Hydrogen production solution



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01

ABOUT US

Company Profile Service products

Corporate culture is distributed in many places





ABOUT US



■中国氢能集团股份有限公司 (CHINA HYDROGEN ENERGY CORPORATION LIMITED) is the international large-scale hydrogen production, Hydrogen storage, hydrogenation, hydrogen energy application equipment manufacturing operators, contracted large-scale domestic and international hydrogen energy project construction, is a professional manufacturer, operators, service providers.

The international business department locates in Hong Kong, the domestic business department is located in Beijing and the production base lies in Xuzhou, Jiangsu. Main production: hydrogen compressor, energy storage pressure Shrinkage machine, hydrogen refueling station package, electrolytic water hydrogen production, hydrogen fuel cell, etc. We mainly serve major central enterprises, state-owned enterprises and listed enterprises in China.



Service Product:

Hydrogen compressor production and manufacturing, hydrogen energy project contracting, energy storage compressor production and manufacturing, new energy project investment, new energy equipment manufacturing, Energy-saving compressor transformation, energy-saving vacuum pump promotion, screw blower, Large air compressor project engineering package, expansion machine and carbon peak, carbon and equipment manufacturing, steam compressor installation, nitrogen machine and water well drilling rig services, hydrogen fuel equipment and hydrogen fuel engineering project construction, national storage can project research and development and general contract.

CORPORATE CULTURE

Profit is only an outcome, not a goal. The pursuit of profit is not a business purpose, but merely a factor.

Only by meeting the needs of users to a large extent, can we better improve the efficiency and achieve the growth of market share. Be worth the product of TRUST was born. It comes from the never-ending REVOLUTION of China Hydrogen Energy Corporation. Always technical (UTMOST) and tireless pursuit and heart to the environment (ECOLOGY) of our careTRUE heart, eternal true heart China Hydrogen Energy Corporatin sincere attention to customer needs and enthusiasm to provide faster, business Products and services Xinran products "HEART TO HEART" concept.

We are committed to meeting the needs of users and to the development and training of human resources.

We pay attention to the interests of users and strive to create various opportunities to obtain their satisfaction to a large extent.

We attach importance to developing the potential of our employees and provide them with continuous training to develop their skills and qualities.





Multi-place layout:



International Business Dept.
(HONGKONG, SHANGHAI)



Domestic Business Dept.
(BEIJING)



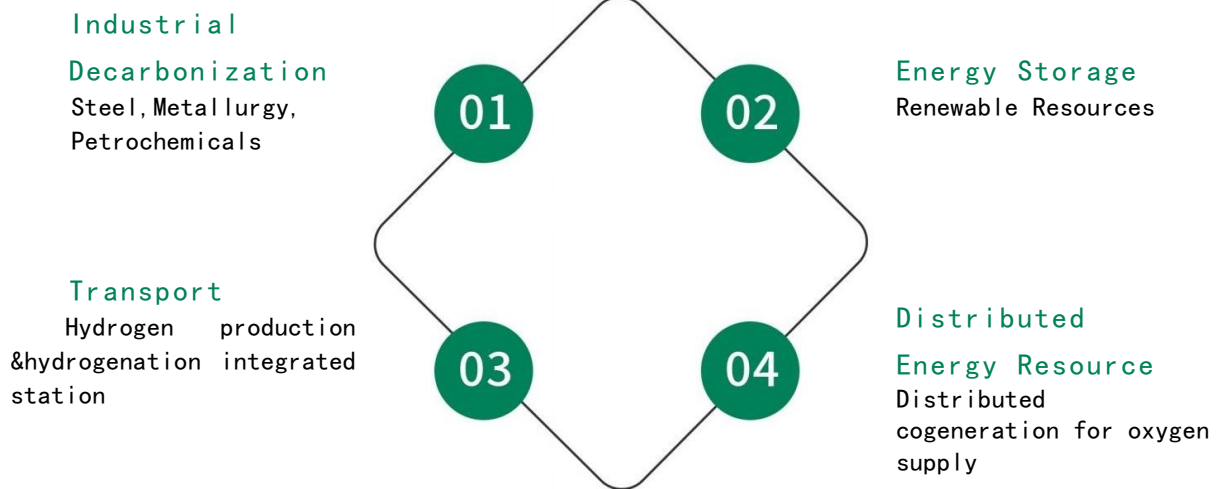
Production Base
(Xuzhou)



Product Service

Application Scenarios Technical route flow
diagram Core components Product features Series products

Application Scene



Technical Routine



Alkaline

PEM

AEM

SOCE

Single Groove:
1-2000Nm³/h
Single Set:
5000Nm³/h
(hydrogen production);
8000Nm³ (depuration)

Single Groove:
1-2000Nm³ /h

Proton exchange
membrane electrolysis
of pure water
Hydrogen production, do
not add alkali
Differential pressure
operation, suitable for
electricity

Single Groove:
5Nm³/h(2022)

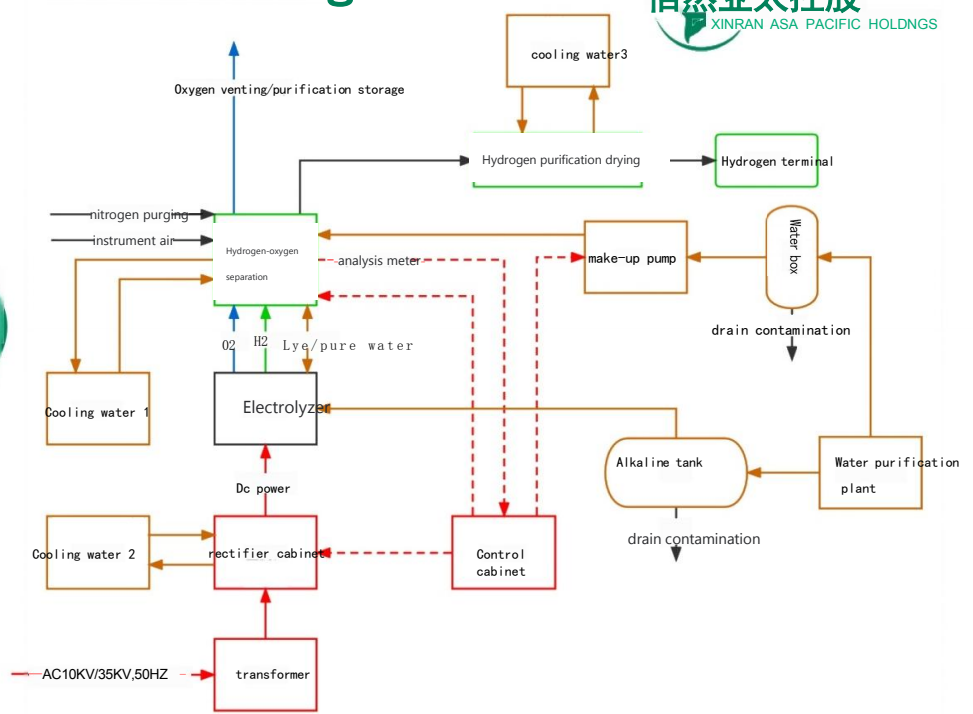
Single Groove:
5Nm³/h(2023)

Low cost, eliminate use
Precious metal for
electrodes.

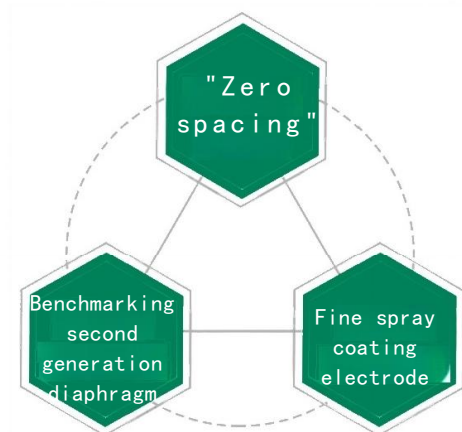
High hydrogen production
efficiency and hydrogen
production

Laboratory testing phase, still
Need commercial exploration
practice
Tsinghua Cooperative Research
and Development

Flow Frame Diagram



Core component



Reduce the energy consumption cost of electrolytic cells by 15%, with a controllable range of 20% -110%. Safety, reliability, and durability



"Zero spacing" slot structure

The new flat plate structure adds a diffusion layer between the electrode and the electrode plate. The diffusion layer contacts and conducts electricity in the form of a surface, greatly reducing the contact resistance of the electrode and improving its electrochemical performance.



Benchmark second-generation diaphragm

Using international benchmark diaphragm materials, the surface resistance of similar products is about 100M Ω , resulting in higher hydrogen purity and better adaptability to the problem of insufficient hydrogen purity caused by system fluctuations.



Fine spray coating electrode

The electrode adopts nickel mesh spray electrode material, which adds new metal elements and finely screens the spray alloy powder compared to the traditional Renee nickel electrode. On the basis of ensuring the stability of the spray electrode, the electrode current density is improved.

Product features

High efficiency: The energy consumption of the electrolytic cell exceeds the international first-class energy efficiency standard, and the system can be adjusted with a wide load of 30% -110%. The product hydrogen meets the requirements of high-purity hydrogen, and the maximum gas production of a single electrolytic cell can reach 2000Nm³/H.

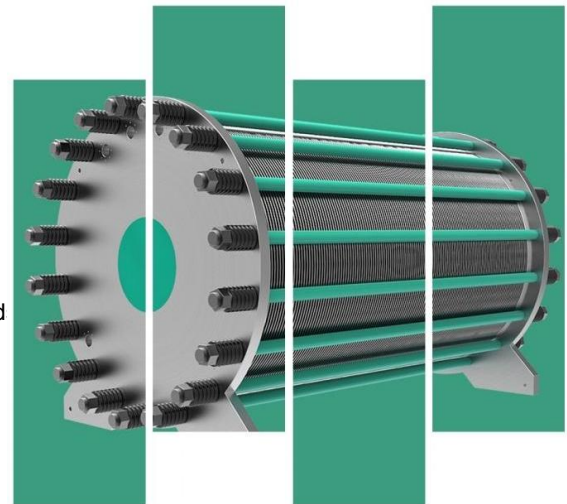
High integration: optional containerized and pry mounted solutions, 5-5000Nm³ Standard modules are optional, with a "N-to-1" multi module design to meet the needs of different application scenarios.

High security: HAZOP, SIS, and LOPA analysis certification, comprehensive safety interlock control, redundant design, and multiple alarm devices (hydrogen leakage alarm, small room voltage alarm, etc.) are installed. Static pressure and dynamic system testing have been completed before leaving the factory to ensure human-machine safety.

Internationalization: Complies with mainstream domestic and international standard such as GB, CE, EN, AS, ISO, ASEM, IEC, etc., to meet the needs of customers in different countries and regions.

Digitization: Meet digital delivery, digital operation, digital maintenance, on-site unmanned operation, remote debugging, one click start stop and monitoring, and data cloud storage.

Net zero emissions: Meet the "CO2 net zero emission requirements", recycle and treat various types of water and alkali, and achieve zero discharge of waste liquid; Various types of solid waste recycling and treatment, achieving zero discharge of solid waste.

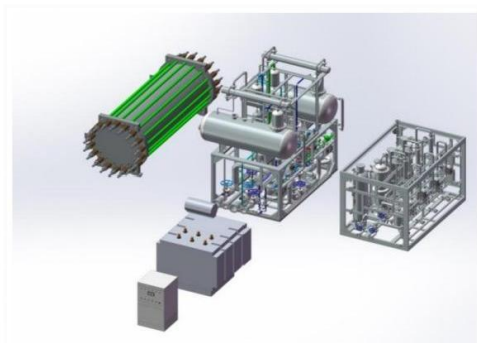


Series products

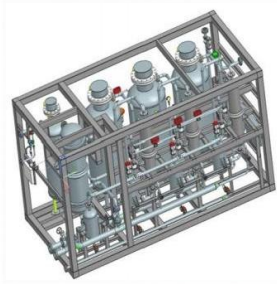
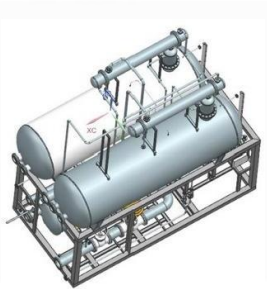


Alkalinity 1000Nm³/h

project	XR1000
Electrolytic cell type	alkalinity
system efficiency	80%
system pressure	1.6MPa
Start time	40-60min
	15min
Hydrogen purity after drying and purification	99.999%
Deminerlized water consumption	900L/h
Design service life	80000h
Radon production	1000Nm ³ /h
Oxygen production	500Nm ³ /h
current density	3000A/m ²
Single cell voltage	1.84V
DC power consumption	4.4KWh/Nm ³ · H ₂
Operating range	30%-110%
Hydrogen purity (crude)	>99.80%
Oxygen purity (crude)	>98.50%



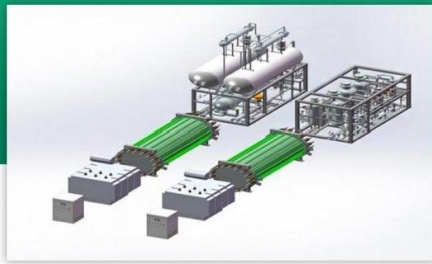
Series products



Alkalinity 2000Nm³/h

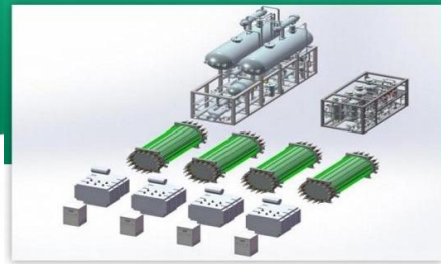
project	XR2000	XR2000PLUS
Electrolytic cell type	alkalinity	alkalinity
system efficiency	77%	80%
system pressure	1.6MPa	1.6MPa
Start time	15min	15min
	<15min	<15min
Hydrogen purity after drying and purification	99.999%	99.999%
Demineralized water consumption	1800L/h	1800L/h
Design service life	80000h	80000h
Hydrogen production	2000Nm ³ /h	2000Nm ³ /h
Oxygen production	1000Nm ³ /h	1000Nm ³ /h
current density	4500A/m ²	8000A/m ²
Single cell voltage	1.92V	1.84V
DC power consumption	4.6KWh/Nm ³	4.4KWh/Nm ³
Operating range	30%~110%	30%~110%
Hydrogen purity at the outlet of the electrolytic cell	>99.80%	>99.80%
Oxygen purity at the outlet of the electrolytic cell	>98.50%	>98.50%
Operating temperature of electrolytic cell	90±5℃	90±5℃

XR series complete products – gas production 4000Nm³/h



XR-40002X2000 series

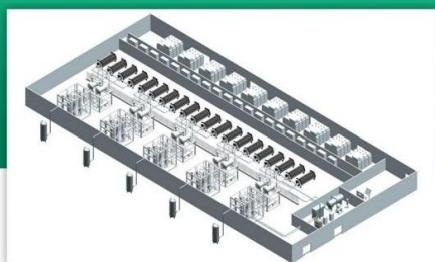
4.6KWh Basic parameters for single slot 2000
Rated hydrogen production: 4000Nm³/h
Rated oxygen production: 2000Nm³/h
Rated DC power consumption: 4.6KWh/Nm³H₂
Current density: 4500A/m²
Current density: 360
Cell voltage: 1.92V



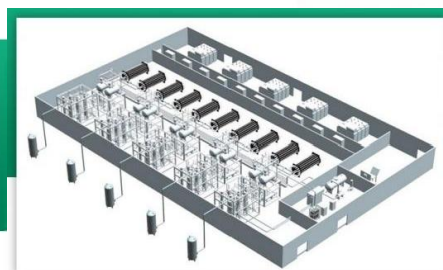
XR-40004X1000 series

4.4KWh Basic parameters for single slot 1000
Rated hydrogen production: 4000Nm³/h
Rated oxygen production: 2000Nm³/h
Rated DC power consumption: 4.4KWh/Nm³H₂
Current density: 3000A/m²
Current density: 330
Cell voltage: 1.84V

100MW Hydrogen production station solution (based on XR series products)



XR1000 X20



XR2000 X10

	100MW-XR1000	100MW-XR2000
Land occupation	5106m ²	3600m ²
Electricity demand	20×6600Kw, 5×425Kw	10×13500Kw, 5×425Kw
Raw material water and electricity consumption	200000L/h	200000L/h
Electricity consumption of chilled water	4300m ³ /h	4300m ³ /h
Hydrogen production	42ton/day	42ton/day

Skid mounted containerized alkaline equipment

At present, a single unit can reach 3MW, and by the end of 2023, a single unit can reach 6MW

It has the advantages of small civil engineering volume, easy installation and movement, and users only need to connect water, electricity, and gas to produce hydrogen anytime and anywhere.





PEM

250KW-1MW



FEM	XR-50	XR-200
electrolyte	Proton exchange membrane	Proton exchange membrane
capacity	250KW	1W
DC power consumption	4.4KWh/Nm ³ H ₂	4.4KWh/Nm ³ H ₂
Operating range	5%-120%	5%-120%
Hydrogen purity	99.999%	99.999%
Dew point	≤-70℃	≤-70℃
System operating pressure	3.5MPa	3.5MPa
Operating temperature	65±5℃	65±5℃
Consumption of raw water	50L/H	200L/H
weight	590KG	4400KG
Start time	0.5min(Heat engine) 3mins(cold machine)	0.5min(Heat engine) 3mins(cold machine)
Major overhaul life	70000h	70000h

Series products



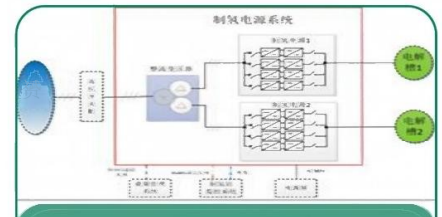
Auxiliary system

The supporting system of the electrolytic cell includes a gas-liquid separation device, an alkali circulation device, a cooling device, a nitrogen displacement device, a gas source device, a sampling and analysis device, and other multi device linkage and coordination components.



Intelligent control

Only the system can be controlled, with three stations and one line control: the engineer station, operator station, and on-site operation station. The system network is based on the DCS system, with scope control. By optimizing control, operating costs can be reduced.



Transformer rectification

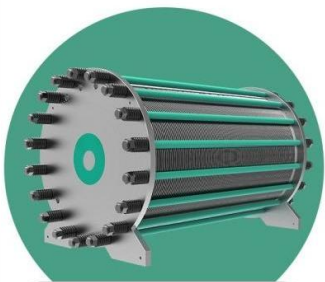
It is divided into thyristors and IGBTs. Thyristors are low-cost and easy to maintain, but they have weak control over renewable energy. IGBTs have many advantages such as reactive power support, high electrolysis quality, intelligence, efficiency, and redundant settings.



03

Win win cooperation

Winning the Future with Technology, Winning the Market with Quality, Creating High Quality Brands, and Creating a First Class Corporate Image



Alkaline equipment

The earliest and longest standing safety practitioner in the safe application of hydrogen energy in China, and the preferred partner of international hydrogen energy application leading enterprises in China, is a leading enterprise in the market share of hydrogen alkaline water electrolysis hydrogen production systems.



PEM equipment

The main equipment supplier for the first megawatt level PEM hydrogen production and energy storage project in China, with industry-leading PEM hydrogen production system integration and production capabilities.



Supporting services

We are a comprehensive service provider for the supply of electrolytic cell supporting systems, equipment maintenance and major repairs, and the supply of supporting accessories, providing high-quality services to solve various problems encountered by customers.



Supporting services

Our unique understanding of the hydrogen energy industry provides customers with comprehensive hydrogen energy solutions.

Winning the Future with Technology and Winning
the Market with Quality



Lightweight

Development of High Current Density Electrolytic Materials and Replacement of Lightweight Plate and Frame for New Internal Structure of Electrolytic Cells

Large scale

Benchmarking national projects, increasing single tank production to 3000Nm³/ Reduce investment in single standard equipment, improve equipment cost-effectiveness, reduce power grid pressure, and reduce harmonics

Intelligence

Provide equipment adjustment strategies for fluctuations in front-end renewable energy. Analyze the data, preset the device startup strategy in advance, and closely integrate it with the backend hydrogen consumption

感谢您的观看

THANK YOU FOR WATCHING

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