

HYDROSYS

HYDROGEN ENERGY EQUIPMENT



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HIGH PRESSURE SOLUTIONS

安 全 | 专 业 | 优 质 | 高 效
SAFE · PROFESSIONAL · HIGH QUALITY · EFFICIENT



01 COMPANY PROFILE

COMPANY PROFILE

Hydrosys(Beijing)Technology Co., Ltd is a high-pressure, ultra-high-pressure system integrated service provider of R & D, production, sales and service, committed to provided a full range of customized hydrogen refueling station core equipment, gas booster system, high-pressure detection system and other integrated solutions.

Founded in 2001, we are always at the forefront of hydrogen energy development, the company's headquarter is in Beijing, with 3 manufacture plants in Beijing, Tianjin and Shanxi, covering a total area of 28,000 square meters, and marketing service centers throughout the country, with 7×24 hours efficient response.

We focus on the core technology of high-pressure fluid application, providing customers with safe and reliable products and solutions, operating in a wide range of pressures from 22MPa to 90MPa, which can be customized according to the different amount of hydrogenation and different application scenarios of the customers, providing potable and stationary solutions to meet the diverse needs of customers.

Hydrosys is driven by innovation. Relying on advanced technology research and development and application, Hydrosys has participated in drafting and formulating 16 national standards for hydrogen energy and owns more than 80 intellectual property rights. The company has been honored as a national "little giant" enterprise, a national high-tech enterprise, the second prize for national scientific and technological progress, and has been named one of the top 100 small and medium-sized enterprises in Beijing.

Rooted in China, reputable in the world. With 20 years of professional hydrogen control, Hydrosys is committed to be the innovator and leader of hydrogen refueling station solutions, to realize the diversified drive of comprehensive services, and to make unremitting efforts to promote the dream of a strong nation and the clean energy revolution!



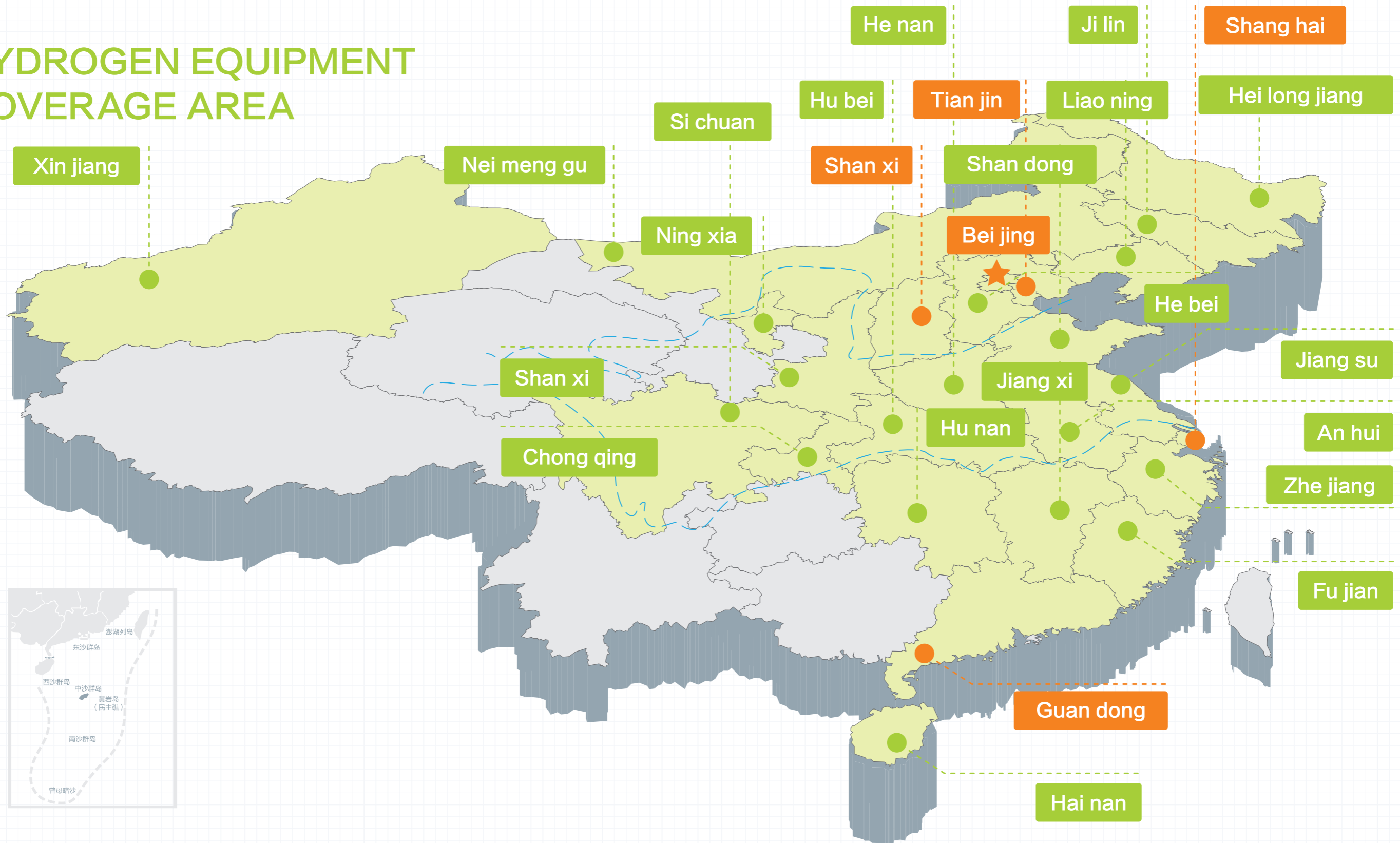
COMPANY HONOR



02 HYDROGEN EQUIPMENT SERVICE PROVINCES

At present, Hydrosys has built more than one hundred hydrogen refueling stations, covering 25 provinces, cities and autonomous regions across China, continuously enhancing the comprehensive service capacity, upgrading the radiation energy level of urban services, creating convenient service conditions for customers across the country, improving the national business support capacity and service level, and promoting the nationwide service co-construction and sharing.

HYDROGEN EQUIPMENT COVERAGE AREA



02 HISTORY OF HYDROGEN REFUELING STATION CONSTRUCTION

CORPORATE MILESTONES

Hydrosys' s business covers steel, petrochemical, automobile enterprises, electric power, gas, coal, transportation and new energy industry. It has built more than 120 hydrogen refueling stations.

As a comprehensive service provider for the construction of hydrogen refueling stations in China, Hydrosys is not only the first to launch the potable hydrogen boosting system in China, but also the first to innovate the hydraulic piston compressor boosting mode in the international market.

From refueling China's first self-developed hydrogen car at the 2010 Shanghai World Expo to the 2022 Beijing Winter Olympics, Hydrosys has supported its customers with hydraulic boosting equipment and high-quality services, effectively contributing to the development of low-carbon city construction.

Hydrosys has been committed to the high-pressure fluid application industry for 20 years, with a customer service satisfaction rate of up to 90% and three consecutive years of high and stable growth.

<p>Established in response to the trend</p> <p>Hydrosys was established in response to the trend to start the road of high-pressure fluid application specialists.</p>	<p>Technological leadership</p> <p>Hydrosys developed the "Large Tube Blasting System" and brings it to market, continuing to lead the tube blasting system industry.</p>	<p>Strengthening R&D capability</p> <p>Hydrosys' s "High-quality Breathing Air Supply System for Astronauts" won the Prize of Army Science and Technology Progress.</p>	<p>Improvement of system construction</p> <p>Obtained the certification of ISO 9000 management system, became a high-tech enterprise in Beijing, and made a major breakthrough in intellectual property technology innovation.</p>	<p>Toyota Hydrogen Station</p> <p>This station is Toyota's first hydrogen refueling station in China and the only 70MPa hydrogen refueling station in China that fully complies with the SAEJ2601 standard.</p>	<p>Strategic Financing</p> <p>In August 2021, Hydrosys received a 100 million yuan investment from Sinopec Enze Fund, followed by other strategic investments.</p>	<p>The first hydrogen refueling station in Dubai UAE</p> <p>Supply, construction and commissioned of one set of hydrogen refueling station in expo park for Emirates National Oil Company Limited in Dubai, the hydrogen was produced by green energy and transported by our long tube trailer, compressed by our filling compressor in solar park for Dubai Electricity and Water Authority. The HRS in expo park could supply of 70MPa and 35MPa filling pressures which could cover the demands of surrounding area.</p>
<p>Self-developing</p> <p>The first self-developed "200MP gas sealing system" in China, used in oilfield equipment.</p>	<p>Establishment of Manufacturing plant</p> <p>We established the first domestic manufacturing plant of Hydrosys.</p>	<p>The first 70MPa hydrogen refueling equipment</p> <p>In 2008, Hydrosys upgraded a new generation of 70MPa hydrogen refueling equipment to provide the first set of potable 70MPa hydrogen refueling station in China for the World Expo.</p>	<p>Sanmen Nuclear Power Station</p> <p>In 2014, the "AP1000 Nuclear Reaction High Pressure Hydrogen Supply System" was developed and put into operation in 2015. Hydrogen booster stations are auxiliary equipment for nuclear power generation, providing high-pressure hydrogen output.</p>	<p>Hypertherm Hydrogen Station</p> <p>Completed in 2018 to serve the 2022 Winter Olympics, the station is currently the longest running hydrogen refueling station with a daily refueling capacity of 1,500kg that has been built and put into stable operation in China.</p>	<p>Puyang Transportation Bureau-Integrated Energy Station of Oil, Hydrogen, Gas and Electricity</p> <p>It has become the first station in Henan Province with two hydrogen refueling specifications of 35MPa and 70MPa, which can provide hydrogen refueling service for all kinds of vehicles.</p>	

02 HYDROGEN EQUIPMENT SERVICE FIELD

HYDROGEN EQUIPMENT SERVICE SCOPE

Automobile enterprise

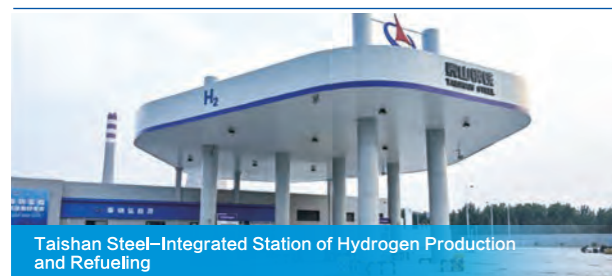


GAG TOYOTA Automobile-Mirai 70mpa Specific Hydrogen Refueling Station



SHANQI Automobile Group-35MPa Portable Hydrogen Refueling Station

Steel



Taishan Steel-Integrated Station of Hydrogen Production and Refueling



Baowu Group-Integrated Station of Hydrogen Production and Refueling

Electricity



State Power Investment Company Jidian Shares Integrated Station of Renewable Energy+PEM Hydrogen Production and Refueling



Rongcheng New Energy Group -Integrated Station of Hydrogen Refueling and Petrol Filling

Traffic



Meijin Energy-Datong Bus no.1 Station

Natural gas

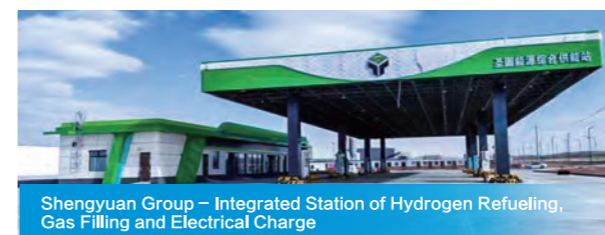


National Petroleum-Integrated Station of Hydrogen Refueling and Petrol Filling



Zhengzhou China Resources Gas- Fixed Station

New energy



Shengyuan Group - Integrated Station of Hydrogen Refueling, Gas Filling and Electrical Charge



Qingyuanjiachuang- Meijin Huasheng Portable Hydrogen Refueling Station

Coal



Lubao Group- Integrated Station of Hydrogen Refueling, Gas Filling and Electrical Charge



He'nan Jinma Hydrogen Energy-Fixed Station

Petrochemical



Sinopec Guangzhou Project -- Puyang City Communications Bureau Comprehensive Energy Station



Nanjing Sinopec- Integrated Station of Hydrogen Refueling and Petrol Filling



Qingyuanjiachuang- Jinjia Petrochemical Fixed Hydrogenation Station



Sinohytec -Chengdu City Portable Hydrogen Refueling Station

03 TECHNICAL CHARACTERISTICS OF LIQUID-DRIVEN HYDROGEN COMPRESSORS

PECULIARITY



Localized equipment, Imported quality, Low cost, High efficiency

With the first-class R&D team and more than 40 patents in the field of high-pressure hydrogen application, we have the leading core technologies in gas pressurization, key valves, hydrogen filling and control system in China.



Modular, fully integrated hydraulic compressors

We are the first to apply hydraulic compressors in the construction of hydrogen refueling stations and realize the modular design of the system, with a maximum boost pressure of 90MPa, which perfectly supports the application of 35MPa and 70MPa hydrogen refueling station solutions.



Hydrogen Resistant Materials Leader

All of the materials used for hydrogen touching are high nickel alloy, which can be used safely under high pressure and high temperature hydrogen environment for a long time, and the life span is up to 15 years.

40+

HIGH PRESSURE HYDROGEN ENERGY PATENTS IN THE FIELD OF APPLICATION

2.0h

SIMPLE STRUCTURE AND LOW MAINTENANCE TIME

90 MPa

MAXIMUM BOOST PRESSURE

15 year

PATENTS IN THE FIELD OF HIGH-PRESSURE HYDROGEN APPLICATIONS



Well-designed structure, large exhaust capacity, low energy consumption.

It adopts a unique structure, which facilitates intake pressure boosting, large exhaust volume and low energy consumption.



Frequent start/stop with load Suitable for conditions at hydrogen stations

It is suitable for continuous or non-continuous hydrogenation in all hydrogen refueling stations and can be started and stopped frequently under load without any effect on seal life.



Simple maintenance, Low total cost of ownership

Liquid-driven booster pumps have a simple structure and low cost of spare parts. For routine maintenance, one technician can perform all operations in less than 2 hours.



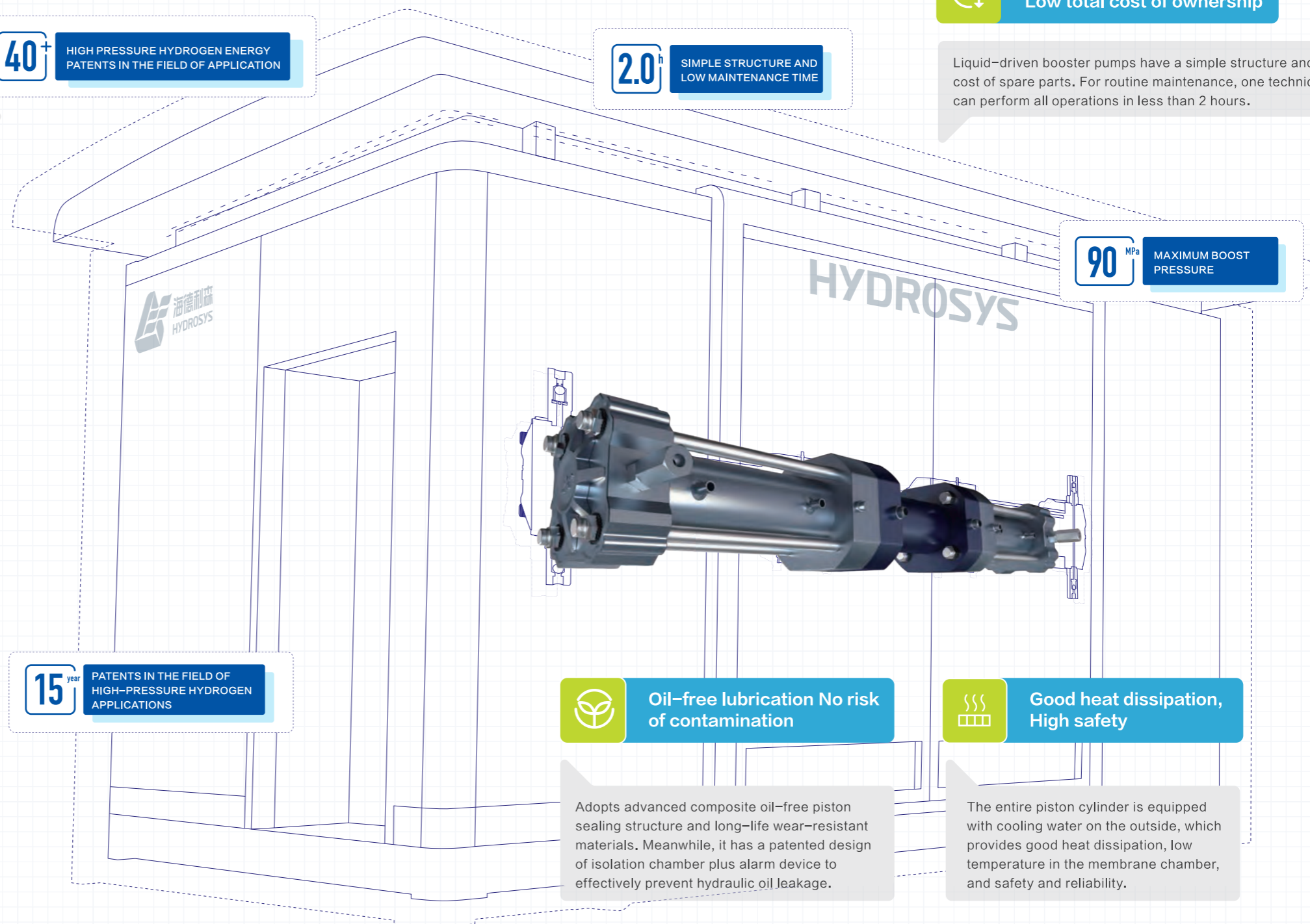
Oil-free lubrication No risk of contamination

Adopts advanced composite oil-free piston sealing structure and long-life wear-resistant materials. Meanwhile, it has a patented design of isolation chamber plus alarm device to effectively prevent hydraulic oil leakage.



Good heat dissipation, High safety

The entire piston cylinder is equipped with cooling water on the outside, which provides good heat dissipation, low temperature in the membrane chamber, and safety and reliability.



04 HYDROGEN ENERGY EQUIPMENT

HYDROGEN ENERGY EQUIPMENT

With the first-class technology research and development team in China, Hydrosys is the earliest supplier of complete sets of liquid-driven compressors and system solution provider in China. With the accumulated experience of twenty years of high-pressure application in the field of aerospace and military industry, Hydrosys is the first one to break through the technology of oil-less pressurization of hydrogen and the design of hydrogen refueling station equipment and integration technology.

We provide core equipment such as hydrogen compressor, hydrogen dispenser and other ancillary equipment such as unloading column, nitrogen valve box, sequence control valve box, etc. We can also provide the whole station equipment such as hydrogen storage container, cooling system and station control system for hydrogen refueling station.

01 BOOSTER

Hydrogen Compressor Series for Stationary and Portable Stations

Hydrogen compressor is one of the core equipment of the hydrogen refueling station, which pressurizes the hydrogen delivered to the station from the tube trailer or hydrogen pipeline to 45-90MPa, so that it can be stored in the hydrogen storage container or directly charged into the hydrogen cylinder of FCV.

Designed to meet GB50516, GB50156 and other relevant national standards, the product are energy-saving, fast filling, highly automated, highly integrated.

Optional Features

- Optional TK17, TK25 or TK16 hydrogen refueling lance assemblies for hydrogen refueling scenarios without a hydrogen storage cylinder bank, such as temporary stations, improvised stations or in-plant self-consumption stations;
- Optional hydrogen mass flow meter for measuring hydrogen filling volume with accuracy better than ±0.5%.

45 MPa — **90 MPa** Off-station or pipeline hydrogen pressurization range



Main technical parameters

No.	Item	Specification			
01	Model name	HY-GDS-1000/450	HY-GTS-500/900	HY-GDS-500/450	HY-GDS-650/900
02	Number of compression stages	Level 1	Level 2	Level 1	Level 1
03	Medium	Hydrogen	Hydrogen	Hydrogen	Hydrogen
04	Inlet pressure	5~20MPa	5~20MPa	5~20MPa	20~45MPa
05	Inlet temperature	≤45°C	≤45°C	≤45°C	≤45°C
06	Discharge pressure	45MPa	90MPa	45MPa	90MPa
07	Discharge temperature	30~45°C	30~45°C	30~45°C	30~45°C
08	Filling capacity	1000kg/12h@12.5MPa	500kg/12h@12.5MPa	500kg/12h@12.5MPa	650kg/12h@30MPa
09	Cooling method	Circulating water cooling	Circulating water cooling	Circulating water cooling	Circulating water cooling
10	Cooling water pressure	0.3~0.4MPa	0.3~0.4MPa	0.3~0.4MPa	0.3~0.4MPa
11	Cooling water temperature	7~15°C	7~15°C	7~15°C	7~15°C
12	Cooling water volume	20m³/h	20m³/h	15m³/h	15m³/h
13	Main motor power	90kW	90kW	55kW	55kW
14	Total power of unit	About 95kW	About 95kW	About 60kW	About 60kW
15	Overall Dimension	4000×2460×2890mm	4000×2460×2890mm	4000×2460×2590mm	4000×2460×2590mm

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Hydrogen compressors for refueling stations

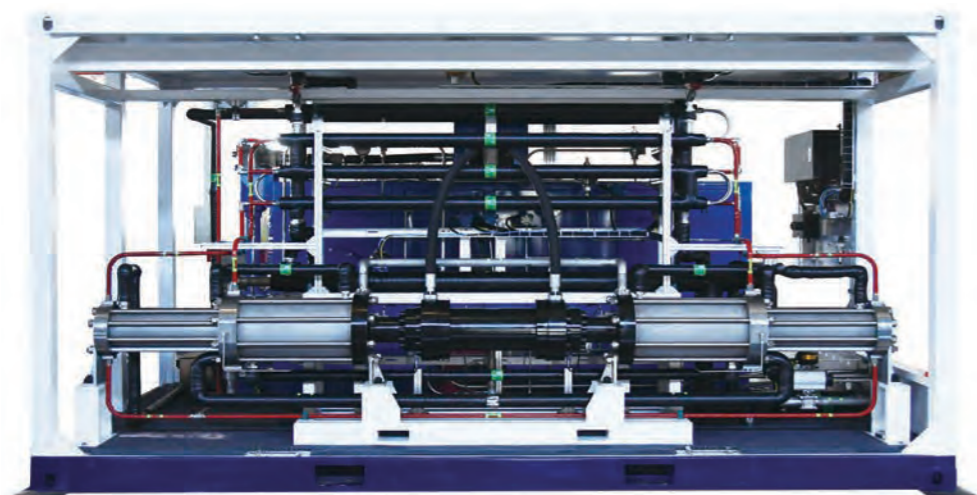
The large displacement hydrogen compressor is one of the core equipment of the hydrogen refueling mother station or hydrogen production station, which pressurizes the medium and low pressure hydrogen delivered from the hydrogen production pipeline to 20~22MPa, and charges the tube trailer through the hydrogen refueling column.

It is designed in accordance with GB50177, GB50516, GB50156 and other relevant national standards to meet the needs of hydrogen refueling stations or hydrogen production stations, and is characterized by energy-saving, high efficiency, fast filling speed, high automation and high integration.

Main technical parameters

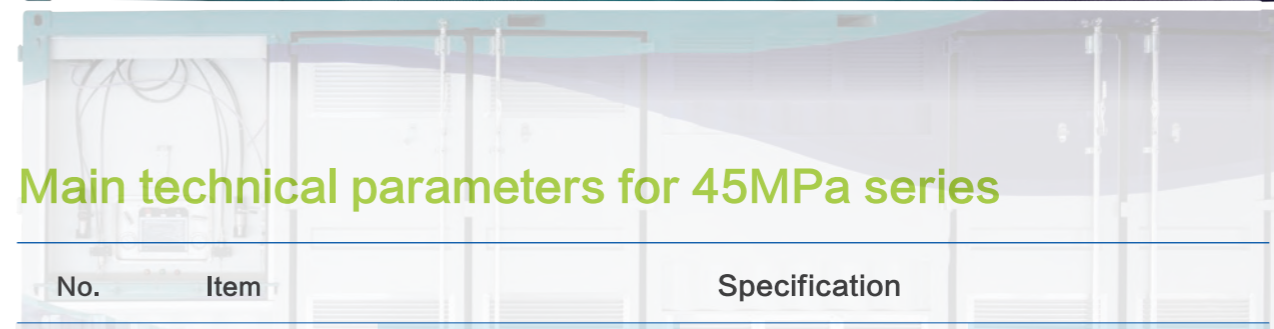
No.	Item	Specification	
01	Model name	HY-H20-500/220	HY-H20-1000/220
02	Number of compression stages	Level 2	Level 2
03	Medium	Hydrogen	Hydrogen
04	Inlet pressure	1.3~2MPa, Design point1.5MPa	2.0~4.0MPa, Design point3.0MPa
05	Inlet temperature	≤45℃	≤45℃
06	Discharge pressure	22MPa	22MPa
07	Discharge temperature	30~45℃	30~45℃
08	Filling capacity	500Nm ³ /h@1.5MPa	1000Nm ³ /h
09	Cooling method	Circulating water cooling	Circulating water cooling
10	Cooling water pressure	0.3~0.4MPa	0.3~0.4MPa
11	Cooling water temperature	7~20℃	7~20℃
12	Cooling water volume	20m ³ /h	25m ³ /h
13	Main motor power	90kW	110kW
14	Total power of unit	About 95kW	About 120kW
15	Overall Dimension	4500×2460×2590mm	4500×2460×2590mm

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.



Fully integrated portable hydrogen refueling station

The fully integrated portable hydrogen refueling station is a highly integrated hydrogen refueling station pioneered and developed by Hydrosys, which combines pressurization, cooling and refueling functions, and is suitable for hydrogen refueling needs in special scenarios.



Main technical parameters for 45MPa series

No.	Item	Specification		
01	Model name	HY-GDS-500/450	HY-GDS-1000/450	HY-GDD-1000/450
02	Application Scene	Mobile stations, logistics parks, demonstration stations	Mobile stations, logistics parks, demonstration stations	Mobile stations, logistics parks, demonstration stations
03	Structure type	skid-mounted house type	skid-mounted house type	skid-mounted house type
04	Filling capacity	500Kg/12h	1000Kg/12h	1000Kg/12h
05	Inlet pressure	5~20MPa	5~20MPa	5~20MPa
06	Discharge pressure	45MPa	45MPa	45MPa
07	Main motor output	55kW	90kW	110kW
08	Total power	90kW	145kW	165kW
09	Hydrogen dispensers model specification	TK25/TK16, WEH	TK25/TK16, WEH	TK25/TK16, WEH

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Main technical parameters for 90MPa series

No.	Item	Specification		
01	Model name	HY-GTS-260/900	HY-GTD-520/900	HY-GDS-500/900
02	Application Scene	Mobile stations, logistics parks, demonstration stations	Mobile stations, logistics parks, demonstration stations	Mobile stations, logistics parks, demonstration stations
03	Structure type	Skid-mounted house type	Skid-mounted house type	Skid-mounted house type
04	Filling capacity	260Kg/12h	520Kg/12h	500Kg/12h
05	Inlet pressure	5~20MPa	5~20MPa	5~20MPa
06	Discharge pressure	90MPa	90MPa	90MPa
07	Main motor output	55kW	2×55kW	90kW
08	Hydrogen dispensers model	TK17,TK25/TK16, WEH	TK17,TK25/TK16, WEH	TK17,TK25/TK16, WEH

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.



02 FILLING EQUIPMENT

Loading panel

Loading panel is a special equipment integrating control, metering and billing functions, specialized in providing hydrogen filling service for tube trailers, and meets the design of single and double stations for tube trailers. Designed according to GB50177 and other national standards, it meets the needs of hydrogen production stations and is characterized by beautiful appearance, easy operation and compact structure.

Main technical parameters

No.	Item	Specification			
01	Equipment model	HY-22HFC-I0101	HY-32HFC-I0101	HY-22HFC-I0201	HY-32HFC-I0201
02	Working Pressure	20MPa	30MPa	20MPa	30MPa
03	Configuration	Single channel	Single channel	Double channel	Double channel
04	Equipment weight	About 300kg	About 300kg	About 320kg	About 320kg
05	Filling capacity	≤300kg/h			
06	Equipment features	Functions such as filling, purging, sampling, metering, charge management, etc.			
07	Working temperature	-40~50℃			
08	Maximum Allowable Tolerance	≤1.5%			
09	Overall dimensions	L830×W650×H1800 (mm)			
10	Working medium	Hydrogen, nitrogen (purge gas)			

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Functional Characteristics

- Intelligent display and convenient keyboard operation.
- Single and dual outputs are available to meet the different conditions of hydrogen charging in trailers.
- Explosion-proof grade Ex IIC T4 or above.
- Equipped with sampling port to detect gas quality as required.
- Equipped with safety valve, pull-off valve and emergency shut-off valve, more safe and reliable use.
- Equipped with high-precision flow meter, measuring accuracy of 0.5%.
- Equipped with electric control system, which can realize the functions of quantitative filling, power-down data protection, etc., and cooperate with the station control system.
- With IC card charge management system, it can realize efficient and accurate measurement and pricing management.



Hydrogen dispenser

The hydrogen dispenser is a specialized equipment integrating control, metering and billing functions to provide hydrogen filling service for hydrogen fuel cell vehicles. It is designed with explosion-proof structure to meet the requirements of hydrogen refueling station for explosive environment use, while the computerized control part can still maintain high stability under harsh environment.

After the input compressed hydrogen enters through the inlet shut-off valve, it is filled into the hydrogen fuel cell vehicle cylinder set through the filter, PCHE heat exchanger, control valve, pull-off valve, refueling hose, and hydrogen refueling gun. Automatic control, quantity metering and amount metering are carried out through the computer program, and the results are displayed on the screen; the system pressure safety is controlled through the pressure gauge, pressure transmitter and safety valve, and the collected pressure data are displayed on the screen.

hydrogen dispenser is equipped with flow adjustment function and heat exchange function. The electronic control system adjusts the filling strategy through hydrogenation process data collection and analysis to realize efficient and safe hydrogenation.

Main Technical Parameters of 35MPa & 70MPa hydrogen dispenser

No.	Item	Specification			
01	Model Name	35MPa Single nozzle, single-metered dispenser	35MPa Dual nozzle, single-metered dispenser	35MPa Dual nozzle, single-metered dispenser	70MPa Single nozzle, single-metered dispenser
02	Hydrogenation gun type	TK25 / TK16	TK25 / TK16	TK25 / TK16	TK17
03	Shape	1170×727×2300 (mm)	1170×727×2300 (mm)	1370× 727×2300 (mm)	1170×727× 2300 (mm)
04	Inlet Pressure	≤45MPa	≤45MPa	≤45MPa	≤90MPa
05	Rated working pressure	35MPa	35MPa	35MPa	70MPa
06	Maximum Allowable Working Pressure	48.2MPa	48.2MPa	48.2MPa	96.3MPa
07	Filling pressure range	2~35MPa	2~35MPa	2~35MPa	2~70MPa
08	Infrared communication	None	None	None	Yes
09	Hydrogen flow rate	≤7.2kg/min			
10	Maximum Allowable Tolerance	≤1.5%			
11	Minimum index value	10g			
12	Measurement repeatability	≤0.5%			
13	Counting range	Single Count Range: 0.00~999.99kg / 0.00~9999.99yuan Cumulative counting range: 8 integer digits, 2 decimal digits Unit Price Setting Range			
14	Display kinetic energy	Unit price, amount, gun number, instantaneous flow rate, pressure, temperature, cumulative filling volume, communication status, etc.			
15	Explosion-proof grade	Ex II CT4 or above			
16	Data processing	Capture, stop interlock and other functions			
17	Communication protocols	Provides dispenser RS-485, Modbus RTU protocols			
18	Air pre-cooling	Equipped with built-in heat exchanger and chiller			

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.



Hydrogenation machine product series and functional characteristics

No.	Item	Specification	Functional Characteristics
01	35MPa Single nozzle, single-metered dispenser	HY-35HFM-I01S01HN	<ul style="list-style-type: none"> The electronic control system adopts the form of microprocessor control board, with IC card charging management system, supporting the synergy with the station control system, which is convenient for operation and management.
		HY-35HFM-I01S02HN	
02	35MPa Dual nozzle, single-metered dispenser	HY-35HFM-I01D04HN	<ul style="list-style-type: none"> The filling rate is controllable to meet the requirements of standards and filling protocols to ensure the safety of hydrogen refueling. Flow meter metering accuracy: 0.5%. Built-in PCHE heat exchanger, easy to install, small footprint, reduce engineering construction costs. Protection grade: IP55 or above. Ambient temperature: -40°C to +50°C.
		HY-35HFM-I02D01HN	
		HY-35HFM-I02D02HN	
03	35MPa Dual nozzle, Dual-metered dispenser	HY-35HFM-I02D04HN	<ul style="list-style-type: none"> Equipped with full-opening safety valve, pull-off valve and emergency shut-off valve, more safe and reliable to use.
		HY-35HFM-I01S03HO	
04	70MPa Single nozzle, single-metered dispenser	HY-70HFM-I01S03HO	

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

03 HYDROGEN UNLOADING EQUIPMENT

Unloading column (manual version)

The unloading column is a special equipment for hydrogen refueling station, which filters hydrogen from the tube trailer and transports it to the hydrogen compressor.
It is designed according to GB50516, GB50156 and other national standards, and meets the needs of hydrogen refueling stations. The product is characterized by beautiful appearance, convenient operation and compact structure.
The unloading column is divided into single and double unloading columns, which can be selected according to the needs of the hydrogen refueling station.

Main technical parameters

No.	Item	Specification	
01	Equipment Model	HY-22HUC-I0101	HY-22HUC-I0201
02	Function	Unloading, purging, sampling, emergency stop, filtration, etc.	Unloading, purging, sampling, emergency stop, filtration, etc.
03	Configuration	Single channel	Double channel
04	Working medium	Hydrogen, nitrogen(purge gas)	Hydrogen, nitrogen(purge gas)
05	Unloading capacity	300kg/h	300kg/h
06	Working Pressure	Max.20MPa	Max.20MPa
07	Working temperature	-40~50℃	-40~50℃
08	Maximum Allowable Tolerance	≤1.5%	≤1.5%
09	Overall Dimension	830×650×1800 (mm)	830×650×1800 (mm)
10	Equipment weight	About 300kg	About 320kg

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Functional Characteristics

- Manual operation, valve instrument panel mounting, easy to operate;
- Single and dual inputs are available to meet the different conditions of hydrogen unloading applications in tube trailers;
- Exd IICT6; Exd IICT6 for electrical parts and instruments;
- Over-pressure safety valve, over-pressure alarm shutdown function;
- Configuration of sampling port, according to the need to detect the gas quality;
- Configuration of pull-off valve, pull-off in case of emergency, gas source and system sealed at the same time at both ends;
- The pipeline valve parts are all made of 316/316L, and the main parts are imported brands.

Optional functions

- Optional high-pressure flow meter, measuring the total amount of unloaded gas, the maximum allowable error $\leq \pm 1.5\%$;
- Fully automatic operation mode.



Unloading column (intelligent version)

The unloading column is a special equipment for hydrogen refueling station, which filters hydrogen from the tube trailer and transports it to the hydrogen compressor.
It is designed according to GB50516, GB50156 and other national standards, and meets the needs of hydrogen refueling stations. The product is characterized by beautiful appearance, convenient operation and compact structure.
The unloading column is divided into single and double unloading columns, which can be selected according to the needs of the hydrogen refueling station.

Main technical parameters

No.	Item	Specification			
01	Equipment Model	HY-22HUC-I0101	HY-32HUC-I0101	HY-22HUC-I0201	HY-32HUC-I0201
02	Function	Unloading, purging, sampling, emergency stop, filtration, etc.	Unloading, purging, sampling, emergency stop, filtration, etc.	Unloading, purging, sampling, emergency stop, filtration, etc.	Unloading, purging, sampling, emergency stop, filtration, etc.
03	Configuration	Single channel	Single channel	Double channel	Double channel
04	Working medium	Hydrogen, nitrogen (purge gas)	Hydrogen, nitrogen (purge gas)	Hydrogen, nitrogen (purge gas)	Hydrogen, nitrogen (purge gas)
05	Unloading capacity	300kg/h	300kg/h	300kg/h	300kg/h
06	Working Pressure	20MPa	Max.30MPa	Max.20MPa	Max.30MPa
07	Working temperature	-40~50℃	-40~50℃	-40~50℃	-40~50℃
08	Maximum Allowable Tolerance	≤1.5%	≤1.5%	≤1.5%	≤1.5%
09	Overall Dimension	830×650×1800 (mm)	830×650×1800 (mm)	830×650×1800 (mm)	830×650×1800 (mm)
10	Equipment weight	About 300kg	About 300kg	About 450kg	About 450kg

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Functional Characteristics

- Intelligent display and convenient operation with keypad.
- Single input and dual inputs are available to meet the different conditions of hydrogen unloading applications in tube trailers.
- Ex IIC T4 or above.
- Equipped with sampling port, according to the need to detect the gas quality.
- Equipped with safety valve, pull-off valve and emergency shut-off valve, more safe and reliable use.
- Equipped with high-precision flow meter, measuring accuracy of 0.5%.
- Equipped with electric control system, which can realize the functions of quantitative filling, power-down data protection, etc., and cooperate with the station control system.
- With IC card charge management system, it can realize efficient measurement and pricing management.



04 VALVE BOX EQUIPMENT

Sequence control valve box (integrated)

Sequence control valve box is a special equipment for hydrogen refueling station, controlled by the station control system, which is used to transport the high-pressure hydrogen discharged from the hydrogen compressor to the corresponding hydrogen storage container, and according to the process demand, the high-pressure hydrogen in the storage container will be distributed and transported to the hydrogen dispenser to realize the function of hierarchical hydrogen storage and refueling.

Designed according to GB50516, GB50156 and other national standards, in line with the use of hydrogen station requirements, the product has a beautiful appearance, easy to operate, compact structure, fully automatic operation and so on.

Technical parameters

Equipment Models	HY-SCS-450-123 Multiple models configured to suit different needs	Equipment Functions	Graduated hydrogen storage refueling, reflux (flare), purging
Working medium	Hydrogen, nitrogen (purge gas)	Working pressure	Max.45MPa;
Configuration	For three-stage hydrogen storage vessels, two to more hydrogen dispensers	Pressure accuracy	±0.5%.FS;
Operating temperature	-30~45°C;	Equipment weight	Approx 500kg/ set;
Dimensions	1500×1000×1880(mm)		

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Functional Characteristics

- Automatic operation, equipped with long-life pneumatic valves, including pneumatic valve switch position monitoring function.
- Explosion-proof grade of electric parts and instruments is Exd II CT6.
- Nitrogen purging pipeline and valve are set up for manual operation.
- Hydrogen storage container hydrogen reflux (inverted tank) function, can be used as an emergency gas source re-filling for vehicle refueling.
- Pipes and valves are all made of 316/316L, and the main parts are imported brands.
- Single chassis design, suitable for hydrogen refueling stations with 1-channel or 2-channel metering.

Optional functions

- The whole machine can be upgraded to 70MPa working pressure;
- Multi-way (multiple inputs and outputs) can be customized;



Sequence control valve box (split)

Sequence control valve box is a special equipment for hydrogen refueling station, controlled by the station control system, which is used to transport the high-pressure hydrogen discharged from the hydrogen compressor to the corresponding hydrogen storage container, and according to the process demand, the high-pressure hydrogen in the storage container will be distributed and transported to the hydrogen dispenser to realize the function of hierarchical hydrogen storage and refueling. Designed according to GB50516, GB50156 and other national standards, in line with the use of hydrogen station requirements, the product has a beautiful appearance, easy to operate, compact structure, fully automatic operation and so on.

Technical parameters

Equipment Models	HY-SCS-450-133-C-D (Multiple models configured to suit different needs)	Equipment Functions	Graduated hydrogen storage refueling, reflux (flare), purging
Working medium	Hydrogen, nitrogen (purge gas)	Working pressure	Max.45MPa
Configuration	For three-stage hydrogen storage vessels, two to more hydrogen dispensers	Pressure accuracy	±0.5%.FS
Operating temperature	-30~45°C	Equipment weight	Approx 500kg/ set;
Dimensions	External dimensions of hydrogen storage valve box: 1200×1000×1880mm, Outside dimensions of gas extraction valve box: 1500×1000×1880mm or 1000×1000×1880mm		

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Functional Characteristics

- Automatic operation, equipped with long-life pneumatic valves, including pneumatic valve switch position monitoring function.
- Explosion-proof grade of electric parts and instruments is Exd II CT6.
- Nitrogen purging pipeline and valve are set up for manual operation.
- Hydrogen storage container hydrogen reflux (inverted tank) function, can be used as an emergency gas source re-filling for vehicle refueling.
- Pipes and valves are all made of 316/316L, and the main parts are imported brands.
- Dual chassis design, suitable for 3 or more metering hydrogen stations.

Optional functions

- The whole machine can be upgraded to 70MPa working pressure;
- Multi-way (multiple inputs and outputs) can be customized;



Nitrogen Valve Box

Nitrogen valve box is connected with nitrogen container to output nitrogen after depressurization to meet the instrument gas and blowing gas.

Designed according to GB50516, GB50156 and other national standards.

It meets the requirements of hydrogen refueling station and is characterized by beautiful appearance, compact structure and easy observation.

Nitrogen valve box is divided into single and double channel, users can choose according to the needs of hydrogenation station.

Technical parameters

No.	Item	Specification	
01	Equipment Model	HY-NCS-150/8-11M	HY-NCS-150/8-12M
02	Function	Filtration, depressurization, etc.	Filtration, depressurization, etc.
03	Working medium	Nitrogen	Nitrogen
04	Working Pressure	Max.15MPa/0.8MPa	Max.15MPa/0.8MPa
05	Working temperature	-30~45℃	-30~45℃
06	Pressure accuracy	±0.5%	±0.5%
07	Outline style	box type	box type
08	Overall Dimension	800×600×1880mm	1100×600×1880mm
09	Equipment weight	Approx 190kg	Approx 255kg

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Functional Characteristics

- Functional Characteristics
- Manual operation, valve instrumentation panel mounted, easy to operate
- Explosion-proof grade of electrical parts and instruments is Exd II CT6.
- Equipped with overpressure safety valve to protect system safety
- Equipped with manual pressure relief valve, convenient to release the system pressure
- The main components of the equipment are imported brands



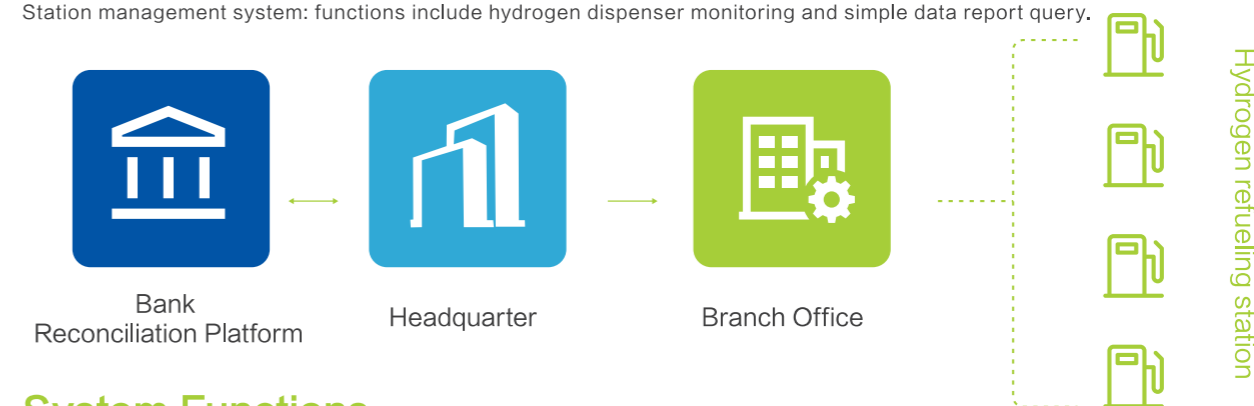
05 MANAGEMENT SYSTEM

IC Card Management System

IC card management system is deployed according to the three-tier structure of headquarters, branch offices and hydrogen refueling stations, and is divided into center management system and station management system according to the usage scenarios.

Center management system: Functions include new construction and recharge of customer stored-value card, establishment of customer information, binding of stored-value card, and so on.

Station management system: functions include hydrogen dispenser monitoring and simple data report query.



System Functions

The system functions are divided into IC card issuance, IC card management, record query, data statistics and other management.

Scope of supply

No.	Name	Ltem	Remark
01	Toll System Software	Station Communication System	Station Management System Data Interaction with Hydrogen dispenser, Loading Panel and Unloading column
		Center Communication System	Interaction of the station management system with the center management system
		Station Management System	Hydrogen station use
		Center Management System	Hydrogen station, branch office, head office use, single station operation possible
		Encryption Service System	Provide encryption/decryption service for the system
02	Toll System Hardware	Industrial Controller	13, 8G RAM, 500G hard disk
		Monitors	27 inch
		Mouse and Keyboard Sets	1 set
		Communication Controller	The converter of the industrial control machine connecting with the gas dispenser
		Report Printer	For printing reports, A4 laser printing
		Desktop Card Reader	Used for card issuance, recharging, and round storage
		Encryption Server	For encryption verification of network 1C card placement and storage
		PSAM Card	For C-card verification (N+ cards, N identifies the number of hydrogen dispensers)
		Card	For refueling, unloading, commuting, etc.
		Small ticket printer	For printing thermal tickets
		Security Dongle	For local C-card round-store encryption verification

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Hydrogen Station Control System

The hydrogen station control system monitors the operation status of the entire hydrogen station in real time, centralizes the management of the equipment in the station, and dynamically simulates the operation of the equipment through a variety of elements such as numbers, colors, and words in the upper software to ensure the safe, reliable and automatic operation of the equipment.

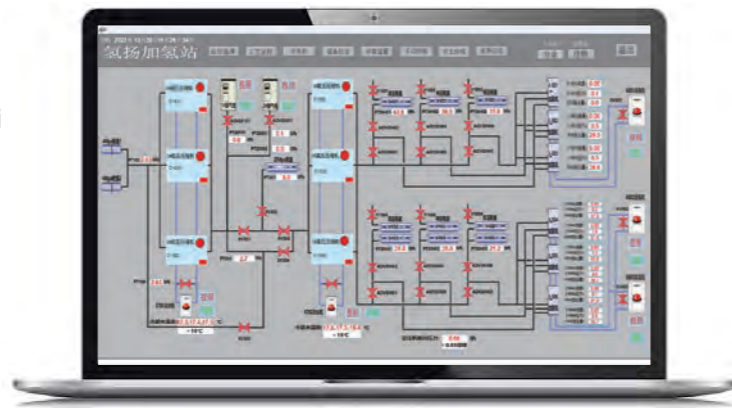
Technical parameters

No.	Ltem	Specification
01	Power supply	AC220V
02	Equipment Model	HY-GDS-1EC-SC
03	Equipment Function	Centralized monitoring, automatic operation, alarm management
04	Host system	27-inch display: Dell 15-11400/8G/1T+256 solid state/R5430-2G independent graphics card
05	Controller	Siemens
06	Software	KingView 7.5 2000点
07	Data storage	20Ch@1HZ, Excel
08	Communication interface	Ethernet port/RS485 communication port

Note: The table is our standard series of products, if you have other customized needs, please contact our sales and service personnel.

Optional functions

- Data cloud uploading and browsi
- Control system main interface.



Functional Characteristics

- With manual and automatic operation modes, one key to start and stop the intelligent compression function
- Sound and light alarm, integrated alarm display for each device in the station
- Data storage, historical data query function
- 24 hours continuous operation
- UPS, power failure renewal \geq 2H
- Hardware and software emergency stop function
- Integrated monitoring of hydrogen and fire detection signals
- User rights management
- Software reset function

05 AFTER-SALE SERVICE

AFTER-SALES SERVICE



Fast service time

With a 100-person after-sales service team, the whole team is divided into four regions: North China, East China, South China and Southwest China, which can realize the fastest arrival at the scene within 2 hours, and troubleshooting within 4 hours.



High professional quality

average hydrogen industry work experience of after-sales service team personnel is more than 3 years, having capabilities of independent processing and analysis; all personnel get a professional after-sales system-wide training so to meet the clients' operation and maintenance, maintenance and training and other types of needs.



Good user experience

The after-sales service personnel carry out active inspection of equipment from time to time as well as free maintenance and warm hearted action, so as to realize early discovery and solution of problems, reduce the incidence of equipment failure and improve customer satisfaction.



Low maintenance fee

The maintenance of equipment outside the warranty period adopts the system of flat fee and large customer preference, allowing customers to pay less money to use more stable equipment.

安 全 | 专 业 | 优 质 | 高 效
SAFE · PROFESSIONAL · HIGH QUALITY · EFFICIENT

MORE PRESSURE, MORE EXCELLENCE

