



# HYDROGEN REFUELING STATIONS CATALOGUE

Discover our latest projects around the renewable hydrogen value chain.  
Explore innovative solutions for your needs.



# WELCOME

Headquartered in Madrid, Asmain is a Spanish engineering and equipment supply company with a significant international presence. We excel in three primary business areas:

- 1. Marine Projects:** We specialize in ports, shipyards, and vessels, providing cutting-edge solutions to enhance maritime infrastructure.
- 2. Energy Solutions:** Our focus is on the liquid natural gas and renewable hydrogen value chains, driving advancements in energy production and optimization.
- 3. Industrial Equipment Supply:** We provide essential equipment for infrastructure projects, including pipelines, structural steel, and modified marine containers.

With over 20 years of experience, Asmain has established multiple offices and expanded into key international markets, including Europe, Asia, the Middle East, and the Americas. This extensive network allows us to serve a diverse client base and adapt to market needs and regulatory environments.

Our products are highly customizable, easy to install, and maintain. We undertake basic and detailed engineering tasks to ensure the optimal functionality of our solutions. Leveraging our international experience, we integrate global best practices and innovative solutions into our projects, delivering high-quality results worldwide.

At Asmain, our core values of integrity, innovation, and customer success are at the heart of everything we do. We strive for continuous improvement and believe in the power of win-win cooperation to achieve remarkable outcomes. Our results-driven approach ensures that every project we undertake not only meets but exceeds expectations. We are committed to embracing new technologies and innovative practices to deliver cutting-edge solutions that create significant value for our clients and the communities we serve.

Join us at Asmain, your reliable ally!

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# INTRODUCTION

Welcome to the Renewable Hydrogen Refueling Stations section!

As the world moves towards sustainable and environmentally friendly energy solutions, hydrogen is emerging as a key player in the transition from fossil fuels to cleaner alternatives. Hydrogen refueling stations are at the forefront of this revolution, offering a crucial infrastructure for the adoption of hydrogen fuel cell vehicles (FCVs) and other hydrogen-powered technologies.

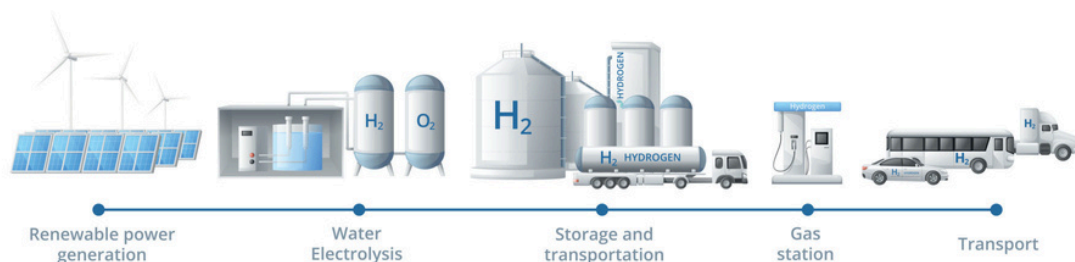
Hydrogen refueling stations (HRS) are facilities that provide hydrogen fuel to vehicles equipped with hydrogen fuel cells. These stations are equipped with specialized storage tanks, compressors, and dispensers to safely and efficiently handle hydrogen.

The technology and infrastructure of hydrogen refueling stations are designed to ensure high-pressure storage and fast refueling times.

The main applications of hydrogen refueling stations we work with are:

- **Transportation Sector:** Passenger vehicles powered by hydrogen offer a zero-emission alternative, with refueling times comparable to gasoline cars. Commercial fleets, including buses and trucks, are increasingly using hydrogen to reduce greenhouse gas emissions and lower operational costs.
- **Industrial Applications:** In industrial settings, hydrogen is proving to be invaluable for material handling and backup power solutions. For example, hydrogen-powered forklifts are becoming popular in warehouses and manufacturing plants due to their rapid refueling capabilities and extended operational hours, which enhance productivity and efficiency.

## HYDROGEN FUEL PRODUCTION AND USE



# CONTAINERIZED HYDROGEN REFUELING STATION

This type of hydrogen refueling station integrates a hydrogen compressor, hydrogen refueling dispenser, and heat exchange system in a skid. Compact and convenient to install, with minimized project land, reduced on-site installation work, and installation period.

## Technical Specifications

<b>Suction Pressure</b>	5MPa ~ 20MPa
<b>Max. Discharge Pressure</b>	45 / 87.5MPa
<b>Refuelling Pressure</b>	35 / 70Mpa at 15°C
<b>Refuelling Temperature</b>	35MPa Paas Low As -10°C / 70MPa Paas Low As -40°C
<b>Refuelling Capacity</b>	50-1000kg / 12h at 12.5MPa



# CONTROL SYSTEM



The hydrogen refueling station control system consists of a station payment management and operation monitor system, fulfilling inquiry and statistics of station transaction data and report output and operation monitor of equipment onsite.

The hydrogen refueling operation monitor system consists of a PLC control cabinet, hydrogen compressor, hydrogen leak alarm system, ESD system, industry computer, and SCADA system. Multiple hydrogen refueling station control systems are linked by the internet to carry out unified supervision.

# HYDROGEN DISPENSER

Composed of a mass flowmeter, electronic metering and control system, hydrogen nozzle, shut-off and safety valves, and intelligent measure of cumulative gas flow.

## Performance features

- Modular design: Optional on customer's demand.
- High safety performance: Overpressure relief, emergency shut-off, etc.
- High intelligence: One-button refueling and real-time monitoring.
- Encryption protection: Payment data is protected by encryption.
- Strong data support: Real-time data support for customers.

## Technical Specifications

<b>Gas Medium</b>	Hydrogen
<b>Working Power</b>	AC 185V~245V, 50Hz±1Hz
<b>Ambient Temperature</b>	-25°C~55°C
<b>Filtering Accuracy</b>	≤5μm
<b>Working Pressure</b>	35 / 70MPa
<b>Flow Range</b>	(0.5-5.0) kg/min (0.5-7.2) kg/min
<b>Max. Allowed Error</b>	±1.5%
<b>Repeatability</b>	0.5%
<b>Unit of Measurement</b>	kg



# SEQUENCE PANEL

Automatic control device composed of shut-off valve, safety relief, and electrical control systems. It is used to realize energy efficiency gas storage, grouped sequential gas supply, etc. of the hydrogen storage system at the HRS.

## Performance features

- Modular design: Optional on customer's demand.
- Graded automatic filling.
- Energy saving and consumption reduction: The vehicle-mounted gas cylinders can be directly refueled by the tube bundle truck.
- Intelligent control: Real-time gas supply.

## Technical Specifications

<b>Gas Medium</b>	Hydrogen
<b>Working Power</b>	AC 185V~245V, 50Hz±1Hz
<b>Ambient Temperature</b>	-25°C~55°C
<b>Working Pressure</b>	35 / 70MPa
<b>Control Mode</b>	Mechanical / Electrical
<b>Structure Type</b>	Frame / Shell type





# LOADING / UNLOADING POST

The Hydrogen loading/unloading post is a special equipment composed of a mass flowmeter, electronic metering and control device, solenoid valve, safety relief and electrical control systems, and valve to measure the cumulative gas flow.

## Performance features

- Modular design: Optional on customer's demand.
- Automatic control and real-time monitoring.
- Automatic fault detection.
- Intelligent control: Remote data transmission and local storage.
- High safety performance: It is provided with nitrogen purging and replacement functions.

## Technical Specifications

<b>Gas Medium</b>	Hydrogen
<b>Working Power</b>	AC 185V~245V, 50Hz±1Hz
<b>Ambient Temperature</b>	-25°C~55°C
<b>Filtering Accuracy</b>	≤5μm
<b>Working Pressure</b>	25MPa
<b>Max. Allowed Error</b>	±1.5%
<b>Repeatability</b>	0.5%



# DISPENSER CALIBRATOR

This unit of high precision mass flow, pipeline, computer, and electronic measure controller. It is developed specifically for calibrating the vehicle dispensers.

## Performance features

- Verify the measurement error of the hydrogen dispenser.
- Display flow curve in real-time.
- Parameter set available.
- User information available.
- Query calibration details and records in different ways.
- Print calibration certificate and record Query.

## Technical Specifications

<b>Gas Medium</b>	Hydrogen
<b>Voltage</b>	DC12V~DC24V
<b>Ambient Temperature</b>	-25°C~55°C
<b>Weight</b>	60kg
<b>Working Pressure</b>	35 / 43.8MPa
<b>Dimension</b>	650mm x 350mm x 550mm
<b>Max. Allowed Error</b>	±0.5%
<b>Repeatability</b>	0.25%



# THANK YOU

Thank you for exploring our Hydrogen Refueling Stations section!

We hope this journey has provided valuable insights into the potential of hydrogen as a clean and sustainable fuel for transportation. As we continue to innovate and drive forward the transition to a greener future, your interest and support are invaluable.

Stay connected with us for the latest updates and developments in renewable energy and sustainable transportation. Together, we can create a brighter, cleaner, and more sustainable tomorrow. Thank you once again for joining us on this journey towards a hydrogen-powered future.

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