



HYDROGEN FUEL CELLS 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 Fuel Cells section!

As the global focus shifts towards sustainable and clean energy solutions, hydrogen fuel cells are gaining prominence as a versatile and efficient technology. Hydrogen fuel cells convert chemical energy into electrical energy through a clean and efficient process, making them a key component in the transition to a greener future.

Hydrogen fuel cells are devices that generate electricity through an electrochemical reaction between hydrogen and oxygen. Unlike conventional power sources, fuel cells produce electricity without combustion, resulting in zero emissions of pollutants or greenhouse gases. The only byproducts are water and heat. Hydrogen fuel cells are highly efficient and can be scaled to various sizes, making them suitable for a wide range of applications from powering vehicles to providing backup power for buildings.

The main applications of hydrogen fuel cells we work with are:

- **Portable Power:** For remote and off-grid applications, hydrogen fuel cells provide reliable and independent power sources, supporting activities like exploration and emergency response. Their ability to generate power on the go makes them invaluable for maintaining connectivity and functionality in diverse environments.
- **Stationary Power:** They offer a versatile solution for stationary power needs in both residential and commercial buildings. They can provide primary or backup power, ensuring uninterrupted energy supply during outages or in areas with unreliable grid access. In industrial settings, hydrogen fuel cells are used to power machinery and equipment, enhancing operational efficiency and reducing environmental impact.

PEM HYDROGEN FUEL CELL SOLUTION

PEM fuel cell systems use a low-voltage and low-temperature stack to reduce the degradation of the membrane. It is a power generation solution that consumes 99.97% pure hydrogen (ISO 14687). This solution produces zero emissions and if thermal energy is required, the thermal management system can be customized.

Performance features

- Low voltage power generation stack.
- Small hydrogen flow cycle process.
- High level of security design.
- Cold start design; Can achieve -20°C fast start.
- Modular design. Power solutions under demand.

Technical specifications

Gas Medium	Hydrogen
Fuel Cell Type	LT-PEM
Hydrogen consumption	0.31 ~ 17kg/ h
Power generation	5kW ~ 300kW (adjustable)
Power generation efficiency	≥92%
Hot water temp. Out	≤65°C
Output voltage	380V or 220VAC 50Hz
Total efficiency	≥48%



THANK YOU

Thank you for exploring our Renewable Hydrogen Fuel Cells Section!

We hope this journey has provided valuable insights into the different renewable hydrogen generation systems. 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 methanol-powered future.

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