



HYDROGEN COMPRESSION SYSTEMS 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

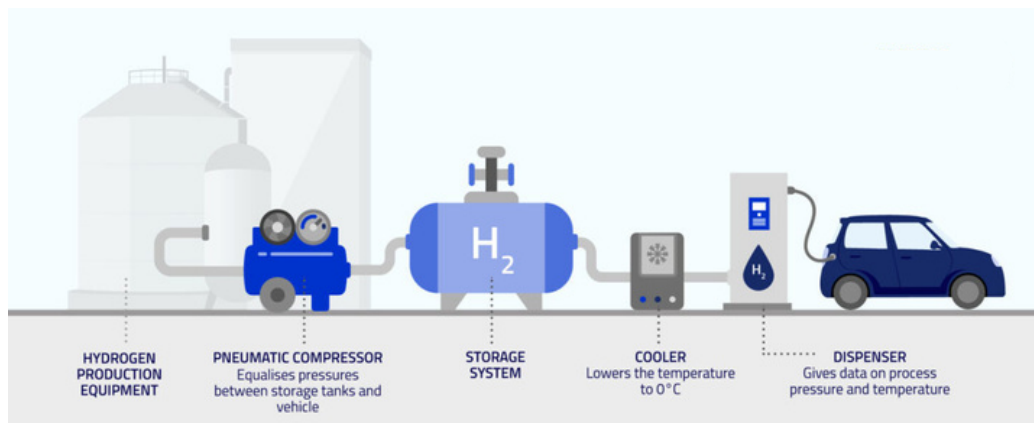
Welcome to the Renewable Hydrogen Compression Systems section!

As the demand for hydrogen as a clean and efficient energy source continues to rise, hydrogen compression systems have become vital components in the infrastructure supporting its use. These systems are essential for storing, transporting, and utilizing hydrogen across various applications.

Hydrogen compression systems are specialized equipment used to increase the pressure of hydrogen gas. This process is crucial for multiple applications, including hydrogen refueling stations, industrial processes, and energy storage systems. By compressing hydrogen, these systems enable efficient storage and transportation, ensuring that hydrogen can be effectively utilized as a fuel and energy source.

The main applications of hydrogen compression systems we work with are:

- **Hydrogen Refueling Stations:** Hydrogen compression systems are essential at refueling stations, where they pressurize low-pressure hydrogen for efficient storage and dispensing. This allows for quick and reliable refueling, maximizing storage capacity and ensuring a steady hydrogen supply.
- **Industrial Applications:** In industrial settings, they are crucial for high-pressure hydrogen processes, such as chemical production and metal refining. They also support hydrogen-powered forklifts and other equipment in logistics and warehousing, providing a consistent and efficient energy source.
- **Energy Storage and Distribution:** They enable the storage of hydrogen produced from renewable sources, facilitating long-term storage and transportation. This integration supports the renewable energy grid and provides backup power through fuel cells, ensuring energy supply during outages or peak demand.



HYDRAULICALLY DRIVEN COMPRESSOR

A hydrogen compressor is typically used at hydrogen refueling stations to pressurize low-pressure hydrogen to a specified pressure. The compressed hydrogen is then stored in the station's storage container or directly filled into the vehicle's gas cylinder.

Performance features

- Long sealing life: The cylinder piston is floating type.
- Low failure rate: The cylinder system consists of a metering pump, reversing valve, and frequency converter, rendering simple control and a low failure rate.
- Easy maintenance: The replacement of a set of cylinders can be completed within 30 minutes.
- High volume efficiency: The cylinder liner is of thin-wall cooling structure, which is conducive to heat transfer, and efficient cooling of the cylinder.
- Fault prediction and health management: Leakage detection devices.

Technical Specifications

Gas Medium	Hydrogen
Voltage	DC12V~DC24V
Rated Displacement	470Nm ³ /h (500kg/d)
Max. Working Pressure	45MPa
Motor Power	55kW
Noise	≤85dB



DIAPHRAGM COMPRESSOR

Hydrogen diaphragm compressors are dedicated to high-purity hydrogen compression. They are used in LP and MP compression stages.

Performance features

- Good sealing performance.
- High safety performance: Provided with intelligent systems.
- High-purity gas: No impurities are generated during normal gas compression, and the purity of the compression gas may reach 99.999%.
- Long-term stable operation.
- High volume efficiency: The special curve design of the diaphragm cavity improves efficiency by 20%.
- Low maintenance cost: Diaphragm may serve for more than 4,000 hours.

Technical Specifications

Gas Medium	Hydrogen
Suction Temperature	-20°C ~ +40°C
Rated Displacement	470Nm ³ /h ~ 500Nm ³ /h
Max. Outlet Pressure	45MPa
Motor Power	30kW ~ 75kW
Min. Intake Pressure	2MPa
Exhaust Temperature	≤45°C
Rated Speed	420r/min



THANK YOU

Thank you for exploring our Hydrogen Compression Systems 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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