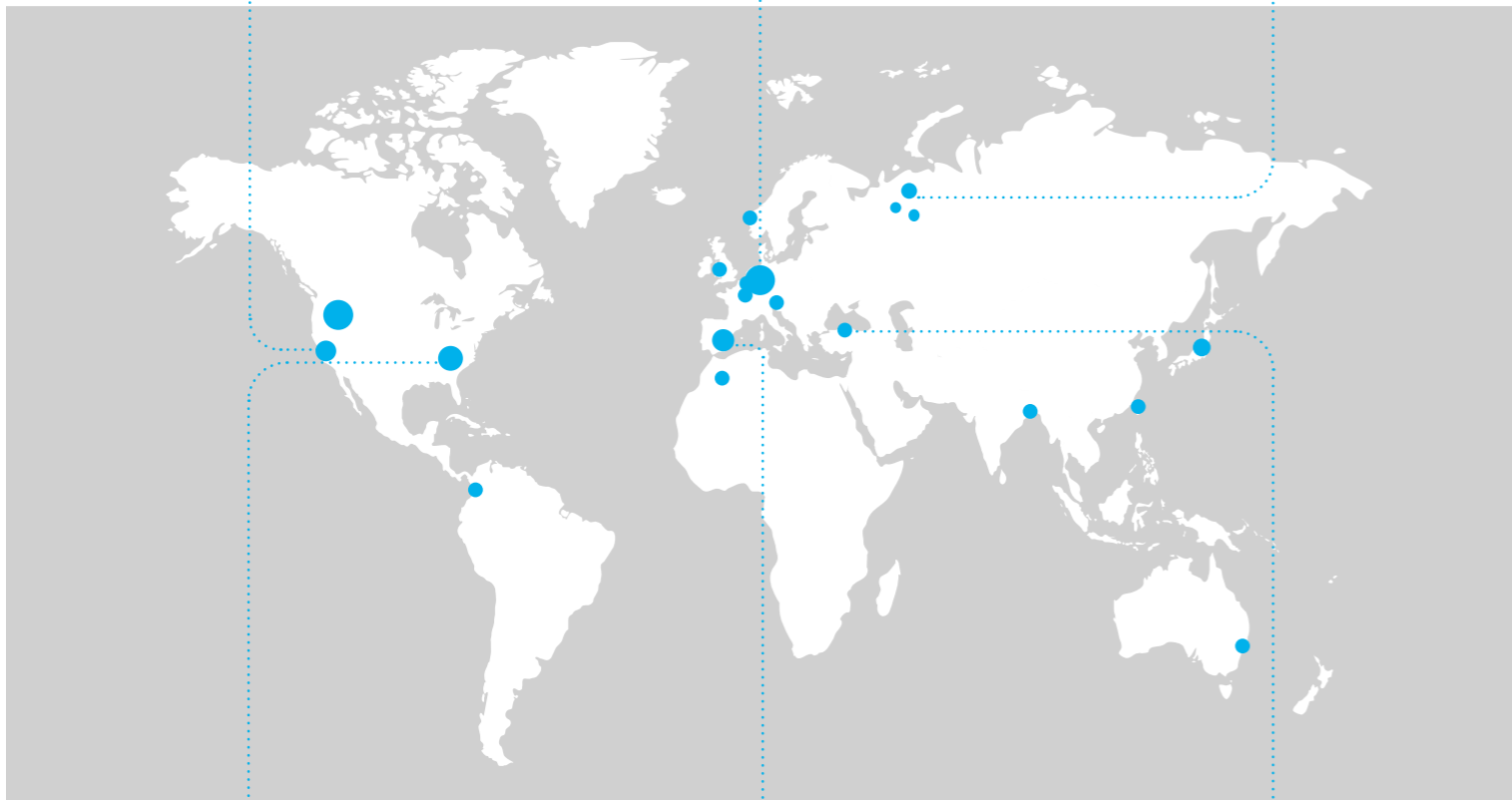




GLOBAL LEAD IN HYDROGEN TECHNOLOGY

Cost-effective, reliable, and low carbon solutions
for on-site production, purification and recycling
of (bio)hydrogen



ABOUT HYGEAR

HyGear makes reliable, on-site, and on-demand (bio)hydrogen accessible. As technology provider with over 20 years of experience and expertise, we take the lead in green hydrogen, hydrogen generation with a low or carbon-negative footprint through carbon capture, and in hydrogen recycling and purification.

Compact and on-site production technology is unique in the world and offers major cost and environmental benefits. Our continuous technical innovation around high-tech hydrogen systems and close cooperation with industry leaders has led to an impressive patent portfolio and a large number of reference customers in different markets across the globe.

HyGear was founded in 2002 and is proudly part of the HoSt Group, a global large family company founded in 1991 offering high-tech renewable energy systems.

We operate from our headquarters in Arnhem, the Netherlands, have local service and maintenance teams worldwide, and representatives operating from local offices in North America and Eastern Europe as well.

HIGH-TECH SYSTEMS

On-site hydrogen is the cornerstone of our business. We offer compact systems for hydrogen generation on-site, conventional hydrogen tube trailer and hydrogen bundles distribution to enable the most cost-effective and reliable gas supply, while reducing the environmental impact. With years of experience we are able to offer a full scope of supply.

Our approach is unique because of our strong technology backbone and the way we partner with you as our customer. Based on your specific application needs, we advise on the best technology or supply options, storage requirements, and systems for gas mixing or compression.

We design, build, own, and operate the system without disrupting your operation. Our contracts are flexible and transparent, without or hidden expenses.



OUR TECHNOLOGY

HyGear provides on-site (bio)hydrogen generation systems that ensure a dependable, safe, and cost-effective supply of high-quality gases in many industries including float & container glass manufacturing, hydrogenation, metal sintering & annealing, and transportation. This allows for local production, reducing dependency on centralized facilities and transportation.

HYDROGEN SYSTEMS

Trucking of hydrogen is only cost effective for relatively small or alternating consumption patterns. In most other cases, on-site generation is the preferred option in terms of cost-efficiency, safety, reliability, and environmental impact.

Hy.GEN • Steam Methane Reforming

Hy.GEN® systems are containerized & compact steam methane reformers (SMR), producing hydrogen from natural gas or from renewable natural gas / biogas. With our continuous innovation, we have upgraded our standardized ranges into Hy.GEN® Compact, Hy.GEN® Medium, Hy.GEN® Medium Plus, Hy.GEN® Grand having an max capacity from 47Nm³/hr (30 SCFM) till 300 Nm³/hr (190 SCFM). Thanks to the modularity of the Hy.GEN® system the total capacity can reach 1,000 Nm³/hr

(625 SCFM). The systems can be cascaded to comply with the end user's exact needs in volume and quality.

Hy.GEN-E • Electrolyzer

Hy.GEN-E® systems produce hydrogen using alkaline electrolysis technology and Temperature Swing Adsorption (TSA) technology with the ability to operate under the pressure of 30 bar(g) without the use of any compressor. This is more energy and cost-efficient when compared to traditional gas separation systems. Our Hy.GEN-E® comes in a capacity range from 50 Nm³/hr (31 SCFM) to 1,000 Nm³/hr (625 SCFM). Thanks to the modularity the Hy.GEN-E's can be easily combined into larger systems.

CARBON CAPTURE

Adding carbon capture technology to a SMR system reduces the carbon footprint of hydrogen production. This translates to 'low-carbon hydrogen production' when the process uses natural gas. When fed with biomethane the footprint reduces to 'carbon-negative hydrogen production'.

HyGear designed a modular and compact system that efficiently converts the captured CO₂ into either gaseous form or liquefied form with the addition of a CO₂ liquefaction system for various



applications. This technology easily integrates with HyGear's Hy.GEN® systems and can be connected to any system with a flue gas source.

DE.OXO HYDROGEN PURIFICATION

HyGear's deoxygenation technology has proven its reliability across various markets. Our hydrogen De.OXO® systems are designed for oxygen and water removal, drying of hydrogen, enhancing the purity of hydrogen. With the De.OXO® Hydrogen, we effectively purify (bio)hydrogen from electrolyzers to comply with the most stringent local and/or global gas regulations.

DE.OXO BIOGAS PURIFICATION

Our biogas De.OXO® systems are designed for oxygen and water removal, enhancing the purity of biogas. Particularly essential in the US market, the De.OXO® Biogas ensures compliance with stringent oxygen regulations, facilitating seamless transportation of biogas for grid injection.

HY.REC • GAS RECYCLING

Our Hy.REC® is a revolutionary purification system that can be applied to recover spent industrial gases from the process and

feed them back as recycled gas. This enables significant cost saving optimisation for any industrial process.

HY.PURE® • GAS PURIFICATION

HyGear offers a product line of gas purification systems to purify hydrogen that is used in the process. The Hy.PURE® is designed to clean up hydrogen-containing gases to high purity hydrogen, increasing the value of the end product.

SUSTAINABLE GAS SUPPLY

Thanks to green gas certificates we are able to supply sustainable gases in small bulk quantities at different purities and volumes, based on the specific application requirements. Many of our customers are served with our ground-breaking on-site generation and recycling technologies.

EXCELLENT LABORATORIES SUPPORT

Excellent Laboratories support our in-depth research, and these are open for third parties to perform their hydrogen tests alone or in combination with the hydrogen experts from HyGear.



SERVICE & MAINTENANCE

Hygear systems are equipped with various sensors, which upon request of the customer, makes it possible to monitor and service the installations remotely by the customer and HyGear. For regular maintenance and, if any, unexpected slowdowns, our worldwide based service team can be on-site shortly. The global service and maintenance of hydrogen systems is a multi-faceted endeavor requiring a combination of cutting-edge technology, skilled labor, stringent safety measures, and a flexible yet robust organizational strategy. This will be crucial in making hydrogen a pillar of the sustainable energy systems of the future.

GLOBAL COVERAGE, LOCAL SUPPORT 24/7

The focus on service and maintenance for delivered hydrogen systems can't be overstated in its importance for ensuring long-term operational efficiency, safety, and economic viability. These systems are highly sophisticated and sensitive, requiring regular check-ups, preventive measures, and sometimes complicated repairs to keep them running optimally. The global nature of this market necessitates a uniform standard of service quality across different geographic and regulatory spaces.

The key of effective global service and maintenance for hydrogen systems is the seamless integration of predictive analytics, real-time monitoring, and skilled human expertise. Advanced sensor technology is deployed across Hygear hydrogen production facilities, storage units, and transport infrastructure, capturing data points that can be analyzed to predict potential system failures. These predictive models minimize downtime, as they allow for proactive maintenance activities that can be scheduled during non-peak hours, thus reducing any interruption in service and associated economic costs.



BENEFITS



GREEN & LOW-CARBON (BIO)HYDROGEN PRODUCTION



RELIABLE SUPPLY



IN-HOUSE ENGINEERED ELECTROLYSERS & SMR SYSTEMS



COST EFFECTIVE SUSTAINABLE SOLUTIONS



CONTAINERIZED, EASY INTEGRATION



GLOBAL & LOCAL SUPPORT COVERAGE

MARKETS



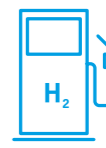
FLOAT AND CONTAINER GLASS MANUFACTURING



METAL SINTERING & ANNEALING



FOOD PROCESSING (HYDROGENATION)



TRANSPORTATION



BIOENERGY



INDUSTRIAL GAS COMPANIES

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