

HyGGe™ 500P

HYDROGEN GAS GENERATOR 500 NM³/H PEM

KEY SPECIFICATIONS

Nominal Flow:	500 Nm ³ per hour
Nominal Output Pressure:	30 barg
Gas Quality:	> 4.8 (> 99,998%)
Containerized:	45ft High Cube process container with same size top frame, and a 40ft High Cube Power Supply container. All standard sea freight containers.
Energy Consumption:	5,2 kWh/Nm ³ at nominal output
Turn Down Ratio:	10% - 100%
Ramp time min-max:	< 1 min
Electrical Connection:	
Power supply container:	Medium Voltage connection of 3 x 3600V (or on customer specification)
Process container:	3 x 400V Electrical IT Network
Nominal power consumption BOL:	2,6 MW
Process Container (45ft HC):	13,72 m x 2,44m x 2,90m - 25 ton
Rooftop Frame (45ft HC):	13,72 m x 2,44m x 2,90m - 10 ton
Power Supply Container (40ft HC):	12,19 m x 2,44m x 2,90m - 22 ton

Directives followed:
Pressure Equipment Directive 2014/68/EU (PED)
Low Voltage Directive 2014/35/EU
Machine Directive 2006/42/EC
Electromagnetic Compatibility 2014/30/EU
ATEX Directive 2014/34/EU

All values are for reference only and are subject to change without prior notice.

Full specifications



EXION
HYDROGEN

HyGGe™ 500P

EXION
HYDROGEN



CLEAN HYDROGEN ON-SITE

A sizeable, modular, containerized water electrolyzer platform designed to safely and reliably produce high-quality hydrogen gas. Built for efficiency and longevity.

PRODUCT BROCHURE

45ft containerized – 500 Nm³/h hydrogen
High purity (>4.8) – 30 barg pressurized

HyGGe™ 500P

PEM WATER ELECTROLYZER

Robust, reliable and scalable on-site hydrogen production

Electrolysis has become a pivotal technology for enabling the transition to cleaner energy and decarbonized industry. The HyGGe™ 500P is engineered to deliver dependable, high-volume hydrogen directly on site, combining efficiency with long-term reliability.

The electrolytic hydrogen from the HyGGe™ 500P meets the highest purity standards, making it suitable for industries where consistency and safety are non-negotiable. From large-scale steelmaking and chemical processes

to sensitive manufacturing environments, it provides a trusted supply of green hydrogen at scale.

Beyond established industrial users, the HyGGe™ 500P supports the growth of renewable integration, large hydrogen refueling stations, and grid balancing applications. Designed with advanced PEM stack technology and a fully integrated control architecture, it is built for scalability, robust operation, and the lowest possible total cost of ownership.

Exion **Hydrogen Gas Generator 500** Nm³/h PEM
45ft High Cube Containerized, 30 barg pressurized, >4.8 Purity

TOP FRAME

The 45ft rooftop frame houses the Heat Exchange Systems in the open section and the Water Purification System with supporting equipment in the enclosed section, all kept dust-free by dedicated air-conditioning.

WATER PURIFICATION SYSTEM

Regular tap water is purified through multi-stage filtration to protect the process and ensure maximum cell stack durability.

DATA CONTROL MODULE

The Data Control Module combines advanced PLCs, safety monitoring, and ATS/UPS backup to ensure secure, efficient operation with secure remote access.

WATER RECYCLING MODULE

This module removes excess water from the hydrogen side and returns it to the demineralized water supply, minimizing hydrogen loss.

POWER SUPPLY CONTAINER

A dedicated, purpose-designed rectifier system combined with maintenance-free transformers, integrated into a standard 40-ft High Cube container, delivers ultra-low-ripple DC current.

GAS PURIFICATION MODULE

Hydrogen from the Gas Generation Module is purified in two steps: a DeOxo vessel removes residual oxygen, followed by molecular sieve dryers that extract moisture, ensuring a final purity of 99,998% (<2 ppm water and <1 ppm oxygen).

WATER POLISHING MODULE

Continuous polishing of demineralized water ensures maximum purity, protecting cell stack performance and lifetime.

GAS GENERATION MODULE

The Gas Generation Module integrates all components required to produce hydrogen at 30 barg under precisely controlled conditions, while ensuring ultrapure water circulation and the safe separation of hydrogen and oxygen for downstream processing.

CELL STACK

The proprietary cell stack of the HyGGe™ 500P electrolyzer delivers 500 Nm³/h of hydrogen at 30 barg and features Exion Hydrogen's HIFI™ technology, which enhances stability and efficiency for smoother production and extended stack lifetime.



ROBUST, RELIABLE, RESILIENT