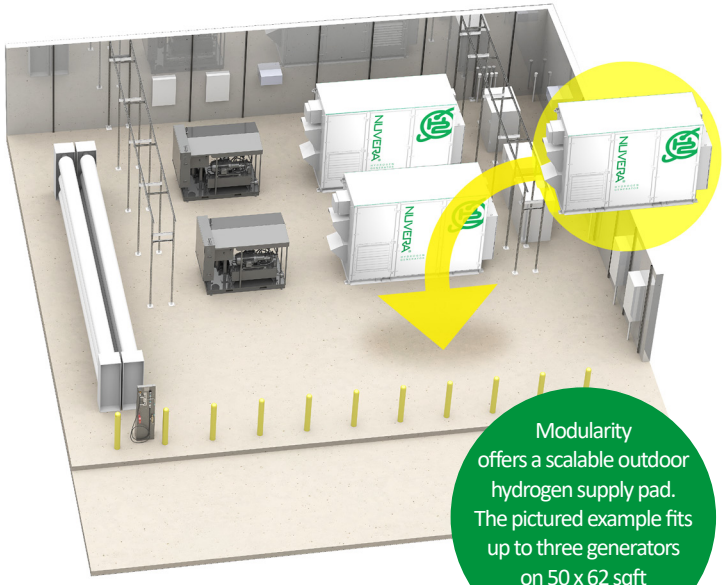
NUVERA®

Hydrogen Generator and Fueling Station



Modularity offers a scalable outdoor hydrogen supply pad. The pictured example fits up to three generators on 50 x 62 sqft (15.2 x 18.9 m).

Fast refueling of industrial trucks from hydrogen generated on-site.

A clean reliable source of hydrogen is key to the successful operation of fuel cell industrial vehicles. The Nuvera® hydrogen generator and fueling station provides your facility with a dedicated, on-site supply of high-purity compressed hydrogen gas to power fuel cell forklift trucks, ground support equipment, transport refrigeration units, and more.

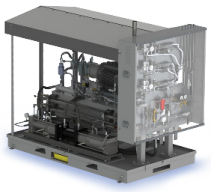
Dispensers are conveniently located indoors or outdoors where operators need them. Back-end technology ensures optimal supply utilization.

Fast-fueled Nuvera fuel cell systems help recover facility space and simplify operations. Just some of the benefits of Nuvera® hydrogen supply equipment.

The Nuvera® hydrogen generator and fueling station offers site-ready components to help secure a dedicated, cost-effective hydrogen supply.

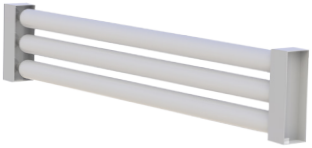
Hydrogen Generator

Steam methane reforming is a highly efficient path to hydrogen. Nuvera's advanced technology delivers high-purity fuel.



Hydrogen Compressor

Hydraulic intensification with integrated cascade filling ensures optimal storage and supply utilization.



Hydrogen Storage

ASME-standard cascading buffer storage scaled to match fleet needs. Back-up storage options available.

Hydrogen Dispenser

Indoor/outdoor dispenser with integrated leak check supports fast, safe and simple refueling.

Refueling is fast and simple

Follows standards for Society of Automotive Engineers (SAE) hydrogen dispensing and can fill most lift trucks as quickly as three minutes.

Easy implementation

An easily shipped design, site-ready components and full install service with minimal lead time. Plus, less hydrogen stored on-site means easier permitting.

Compact and scalable

Advanced technology enables a reduced footprint compared to alternatives. Turndown capabilities and component modularity allow for load cycle flexibility.

Carbon reductions

Fuel cell vehicles have zero emissions. On-site steam methane reformers reduce emissions by approximately 33% compared to delivered hydrogen, according to Argonne National Laboratory.

Cost-effective

High efficiency, optimized space utilization, and supply independence result in a strong ROI.

**Unless noted otherwise, performance ratings are at standard conditions of temperature at 20°C (68°F) and absolute pressure at 100 kPa (14.5 psi)*
***50 kg/day production, storage and dispensing at performance basis, not including chillers.*

NUVERA® HYDROGEN STATION SPECIFICATIONS*

GENERAL CHARACTERISTICS	
Installation location	Generator, compressor and storage: Outdoor Dispenser: Indoor or outdoor
Hydrogen generator dimensions (without vent stack)	4.6 m (l) x 1.5 m (w) x 2.75 m (h) 15.1 ft (l) x 4.9 ft (w) x 9.0 ft (h)
Hydrogen dispenser area	1.2 m x 1.2 m (4 ft x 4 ft)
Station designed to applicable codes and standards	NFPA 2, NFPA 55, NFPA 79, ASME BPVC, CGA S1.3 & 5.5, CSA HGV 4 Series (safety only), ASME B31.3/31.12
Dispenser nozzle compliance	SAE J2600 - H 35 Type A
Dispenser filling method	Designed to J2601-3 protocol for temperature compensated to ambient method
HYDROGEN OUTPUT AT PERFORMANCE BASIS	
Purity (UHP purity can be achieved at reduced flow rate)	Hydrogen >99.9% Vol. All contaminants satisfy SAE J2719 NOV 2015 and ISO TS14687-2:2012 Hydrogen Fuel Quality Standards
Dispensing pressure (settled)	350 bar (5,000 psig) at 15°C (59°F)
Dispensing rate	0.5 kg/min
STORAGE	
Capacity (usable)	Configurable in increments of 20 kg (8,460 scf)
Capacity (total)	Configurable in increments of 60 kg (25,380 scf)
Pressure	431 bar (6,250 psig)
OPERATION AT PERFORMANCE BASIS	
Operating temperature	-10°C to 45°C (14°F to 113°F) standard -30°C to 45°C (-22°F to 113°F) with cold weather package
Natural gas consumption	10.9 Nm^3/h (2.25 gal/sec, 413 scfh)
Electrical consumption**	18 kW
Lifetime target	80,000 hours (10 years)

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NUVERA®
Making hydrogen make sense.