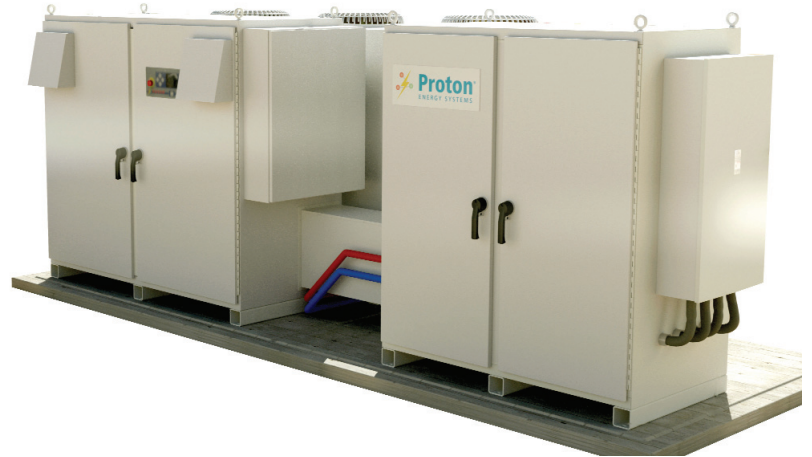


FuelGen® Hydrogen Generation Systems



Model	FuelGen 22	FuelGen 43	FuelGen 65
DESCRIPTION			
	On-site hydrogen generator in two integrated, automated, site-ready enclosures. Automated tank topping operation with power conservation mode during standby.		
ELECTROLYTE			
	Proton Exchange Membrane (PEM) - caustic free		
HYDROGEN PRODUCTION			
Net Production Rate:			
kg per 24 hours	21.6 kg/24 hr	43.3 kg/24 hr	65 kg/24 hr
Nm ³ /hr @ 0° C, 1 bar	10 Nm ³ /hr	20 Nm ³ /hr	30 Nm ³ /hr
SCF/hr @ 70° F, 1 atm	382 SCF/hr	764 SCF/hr	1146 SCF/hr
SLPM @ 70° F, 1 atm	178 SLPM	356 SLPM	535 SLPM
Delivery Pressure - Nominal	30 barg (435 psig)		
Power consumed per unit	Electrolyzer*	70.1 kWh/kg	69.0 kWh/kg
mass H ₂ gas produced	Thermal Control Unit*	6.0 kWh/kg	5.9 kWh/kg
Purity (Concentration of Impurities)	(99.9995%) water vapor < 5 ppm, -65°C (-85°F) dewpoint, N ₂ < 2 ppm O ₂ < 1 ppm, all others undetectable		
Turndown Range	0 to 100% net product delivery (automatic)		
Upgradeability	Field upgradeable to a maximum of 65 kg/24 hr (30 Nm ³ /hr)		N/A

*Depending on ambient conditions

FEED WATER REQUIREMENT			
Inlet Water Quality	Potable main water supply		
Inlet Water Pressure	1 barg (15 psig) to 10 barg (145 psig)		
Inlet Flow Rate (Depending on quality of feed water)	18 L/hr (4.8 gal/hr)	36 L/hr (9.4 gal/hr)	54 L/hr (14.2 gal/hr)
Drain Rate	9 L/hr (2.4 gal/hr)	18 L/hr (4.7 gal/hr)	27 L/hr (7.1 gal/hr)



The Leader in On-site Hydrogen Generation

Model	FuelGen 22	FuelGen 43	FuelGen 65
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ELECTRICAL SPECIFICATIONS

Recommended breaker rating	100 kVA	200 kVA	250 kVA
Electrical specification	342 to 456 VAC, 3 phase, 50 Hz 432 to 528 VAC, 3 phase, 60 Hz		

INTERFACE CONNECTIONS *Consult Installation Manual for details*

H ₂ Product Port	3/8" Parker CPI™ compression tube fitting, SS
H ₂ / H ₂ O Vent Port	Dedicated 1" vent stack
DI Water Port	1/2" FNPT, SS
Calibration-Gas Port	1/8" FNPT, brass
Coolant Supply and Return Ports	Fluids enclosure: 1-1/2" FNPT, brass (cell stack); 3/4" FNPT, brass (hydrogen dryer) Power supply enclosure: 3/4" FNPT, brass (power supply cooling)
Drain Port	1/2" FNPT, brass
O ₂ Vent Port	3/4" FNPT, SS
Protonic Vent Port	Dedicated 1" vent stack
Electrical	Connect to inlet of disconnect box
Communications	Ethernet

CONTROL SYSTEMS

Standard Features	Fully automated, push button start/stop, E-stop, on-board H ₂ leak detection. Automatic fault detection and system depressurization.
Remote Alarm	Form C relay, 5A, 250V, 150W max. rated switching
Remote Shutdown	Safety circuit trip

ENCLOSURE CHARACTERISTICS

Dimensions, W x D x H(Product)	Fluids enclosure: 2362 mm x 914 mm x 1829 mm (93" x 36" x 72") Power supply enclosure: 1880 mm x 914 mm x 1829 mm (74" x 36" x 72")		
Weight (Product)	2041 kg (4500 lbs)	2449 kg (5400 lbs)	2812 kg (6200 lbs)
Rating	IP66 for electronics compartment. IP56 for fluids compartment.		

ENVIRONMENTAL CONSIDERATIONS *Do Not Freeze*

Standard Siting Location	Outdoor; level ± 1°; non-hazardous / non-classified environment
Storage/ Transport Temperature	+5°C to 60°C (41°F to 140°F)
Ambient Temperature Range	-10°C to 50°C (14°F to 122°F)
Altitude Range - Sea Level to:	2000 m (6562 ft)
Ventilation	Proper ventilation must be provided from a non-hazardous area at a rate in accordance with IEC60079-10, Zone 2 NE

SAFETY AND REGULATORY CONFORMITY

Maximum on-board H ₂ inventory at full production	0.08 Nm ³ @ 30 barg 2.9 SCF @ 30 barg 0.0069 kg @ 30 barg
Cabinet ventilation with environment	Vent fan draws fresh air up to 7 m ³ /min (250ft ³ /min)
Noise dB(A) at 1 Meter	< 75
Approvals (Pending)	CE (ISO 22734-1, PED, ATEX, LVD, Mach. Dir., EMC); cTUVus (CSA, UL equivalent)

ADDITIONAL FEATURES

- | | | | |
|----------------------------|--|----------------------------------|---|
| - On-board DI water system | - Remote datalogging, dedicated computer | - Factory matched cooler/chiller | - Product oxygen @ 1.5 barg |
| - Dewpoint Meter | - Outdoor operation package | - Programmable time of day | (98% purity overall; 99.5% excluding water) |
| | - Email notification | | |

Proton Energy Systems offers a wide range of options to tailor your HOGEN hydrogen generation system to meet your specific operational requirements. Please contact your local representative to discuss the current list of options available to best fit your needs.

Preliminary; subject to change without notice. Proton Energy Systems reserves the right to make changes without further notice to this product. Consult Proton Energy Systems Applications Department for proper installation guidelines.



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