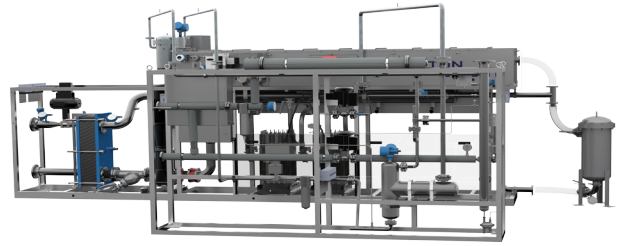


M100

Hydrogen Generation System



MODEL	M100
Features	<p>Fully-automated MW-class on-site hydrogen generator utilizing a modular skid-based design. Tri-mode operation (selectable):</p> <ul style="list-style-type: none"> • Command-following mode allows operation based on available input power. • Load Following mode automatically adjusts output 0-100% to match demand. • Tank Filling mode operates with power-conservation mode during standby.
ELECTROLYTE	
	Proton Exchange Membrane (PEM) - caustic-free
HYDROGEN PRODUCTION	
Net Production Rate	
Nm ³ /hr @ 0°C, 1 bar	104
SCF/hr @ 70°F, 1 atm	3970
SLPM @ 70°F, 1 atm	1874
kg per 24 hours	225
Delivery Pressure - Nominal	30 barg / 435 psig; Full Differential Pressure H ₂ Over O ₂
Hydrogen Purity	> 99.9% Water Vapor < 500 ppm, N ₂ < 2 ppm, O ₂ < 1 ppm, All others undetectable
With Optional High Purity Dryer	ISO 14687-1:1999 Type 1 Grade C / ISO 14687-2:2012 Type 1 grade D > 99.9995% Water Vapor < 2 ppm, N ₂ < 2 ppm, O ₂ < 1 ppm, All others undetectable
ELECTRICAL POWER CONSUMPTION	
MW's @ Cell Stack(s)	0.51
MW's @ System	0.55
Power Consumed per Volume of H ₂ Gas Produced ¹	5.3 kWh/Nm ³
Mass of H ₂ Gas	59 kWh/kg
SYSTEM OPERATION	
Start-Up Time (from Off State)	<5 min
Turndown Range	10 to 100% (Input Power Mode); 0 to 100% (H ₂ Demand Mode)
Ramp-Up Time (Minimum to Full Load)	<10 Sec
Ramp Rate (% of Full-Scale)	≥ 15% per sec (Power Input Mode)
Upgradeability	Upgradeable in 250 KW (52 Nm ³ /hr) Increments to 1 MW (209 Nm ³ /hr)
DI WATER REQUIREMENT	
Consumption Rate at Maximum Production	93 L/hr 25 gal/hr
Maximum Inlet Flowrate	187 L/hr 49 gal/hr
Temperature	5°C to 40°C / 41°F to 104°F

MODEL	M100
PHYSICAL CHARACTERISTICS- MASS (KG)	
Classified Area	
Water Circulation Skid (Operating)	5163
H2 Gas Management Skid	909
Unclassified Area	
Power Conversion Assembly (each) (Includes Rectifiers, Transformer, and AC Distribution)	6500
Power Conversion Quantity	1
MCC	909
Controls	300
PHYSICAL CHARACTERISTICS -DIMENSIONS (MM)	
Classified Area	
Water Circulation Skid	7197 W x 820 D x 2563 H
H2 Gas Management Skid	3317 W x 575 D x 2083 H
Unclassified Area	
Power Conversion Assembly (each)	6200 W x 1200 D x 2850 H
MCC	2032 W x 549 D x 2210 H
Controls	1550 W x 382 D x 2190 H
ENVIRONMENTAL CONSIDERATIONS	
Standard Siting Location	Indoor, 10-90% RH non-condensing for Classified & Unclassified Equipment Outdoor Siting Options Available
Storage/Transport Temperature	5°C to 60°C / 41°F to 140°F
Ambient Temperature Range	10°C to 40°C / 50°F to 104°F
Altitude Range-Sea Level	1000 m /3281 ft
ELECTRICAL SPECIFICATIONS	
Electrical specification	Typical installation: 10 kV and 20 kV, 3 phase + Neutral, 50Hz/60Hz; For lower voltage connection, consult Proton Applications Engineering Department for specific requirements and options. Ancillary equipment powered by Customer or optionally powered by Proton OnSite
Power Quality	Designed to German TAB Specification
OPTIONS	
<ul style="list-style-type: none"> • Factory Matched RO/DI Water System • Factory Matched Thermal Control Unit 	<ul style="list-style-type: none"> • Dew Point Monitoring • High Purity Hydrogen Dryer
	<ul style="list-style-type: none"> • Air Compressor • Containerization

Specifications are subject to change. Please contact Proton OnSite for solutions to best fit your needs.



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