PROTON
THE LEADER IN ON SITE™ GAS GENERATION.

High Capacity Hydrogen Systems

M Series PEM Electrolysers

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As the global demand for power increases, energy resources, power grids and the environment face a variety of challenges often resulting in high levels of pollution, greenhouse gas emissions and elevated indirect costs on society. There has been a shift to deploy renewable technology to meet diverse industry demands- providing sustainable green energy.

Unlike traditional grid power, renewable energy is often unavailable or unpredictable, causing periods of supply and demand mismatch. In addition, costs of wind and solar are approaching grid parity, spurring further penetration of renewables onto an already aging infrastructure. This drives the need for high-capacity energy storage solutions.

Hydrogen generated using PEM electrolysis technology is key to fully leveraging renewable energy.

As an energy carrier, hydrogen provides daily to seasonal storage, creating a reliable source of dispatchable green energy for society's current and future needs. With the response time of a battery and the storage capacity of pumped hydro, PEM electrolysis provides the interface to turn excess energy from variable wind and solar power into hydrogen, which can be converted back into electricity when needed or used as a high value chemical feedstock to support a variety of industrial applications.

Combining grid intelligence with renewable resources, hydrogen-based solutions provide a dependable, environmentally conscious, low-cost energy supply to support:

- Power production
- Energy storage
- Power-to-gas
- Hydrogen fueling/mobility
- Biogas upgrade
- Grid and micro-grid balancing and load shifting

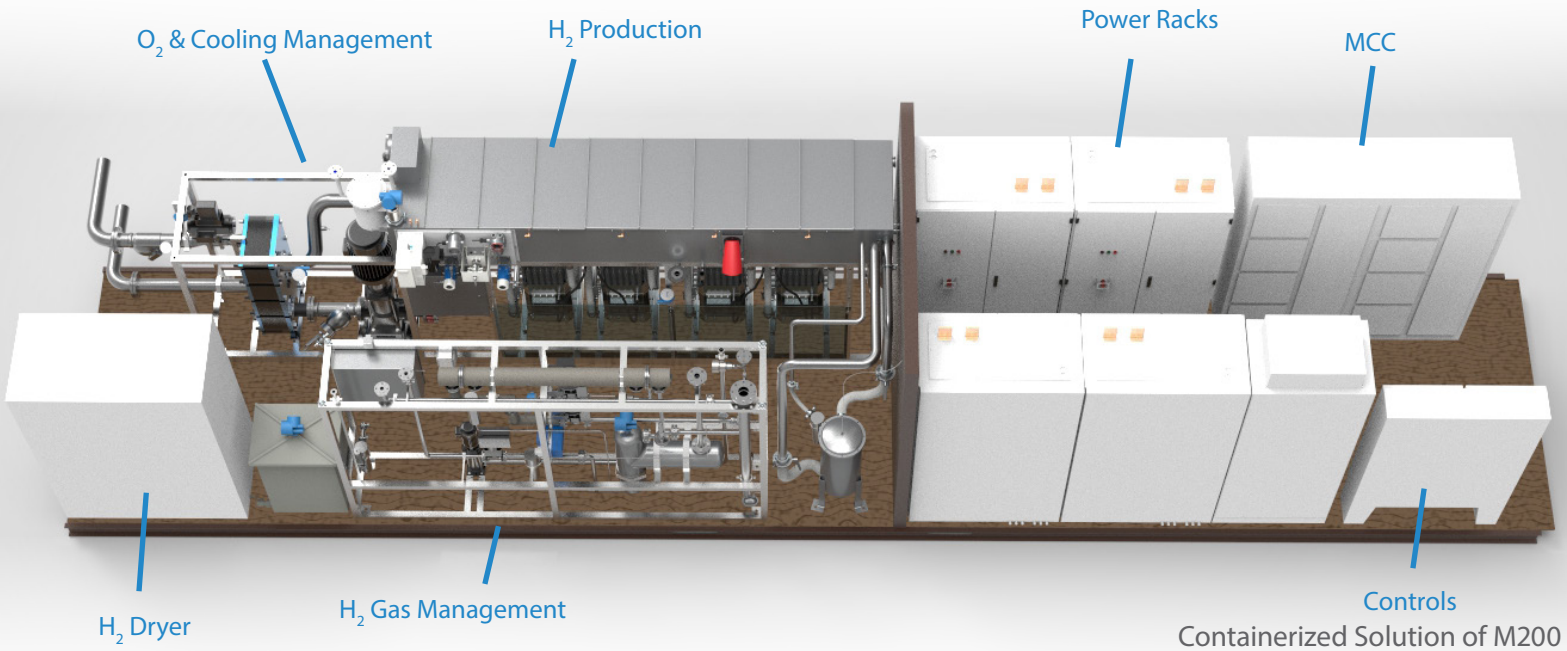
SAFETY
- No caustic material handling
- Advanced differential pressure design
- Meets all international safety standards

DYNAMIC RANGE
- 0-100% variable output
- Instantaneous response to variable input power
- Full ramp up/ramp down in seconds
- Cold start less than 5 minutes

FLEXIBILITY
- Small footprint
- Scalable modular design
- Indoor or outdoor options
- Simple installation requirements

RELIABILITY
- > 99% availability
- Power cycling without stack degradation
- Over 20 years of PEM experience
- More than 2500 systems installed
- Trusted by U.S., British and French militaries

COST EFFICIENCY
- High operating pressure
- Fully automated system
- Remote monitoring and control
- Low cost compared to alternate electrolysis technology
- High efficiency
- Minimal annual maintenance



Containerized Solution of M200

MODEL	M200	M400
Description	Large-scale, modular, skid-based, on-site hydrogen generator. Load following operation automatically adjusts input to follow supply or output to match demand.	
Electrolyte	Proton Exchange Membrane (PEM) - caustic-free	
Hydrogen Production*	200 Nm^3/hr 432 kg per 24 hours	400 Nm^3/hr 864 kg per 24 hours
Delivery Pressure	30 barg / 435 psig	
Hydrogen Purity*	> 99.9995% (water vapor < 2 ppm, -72°C (-98°F) dewpoint, N2 < 2 ppm, O2 < 1 ppm, all others undetectable)	
Electrical Power Consumption	1 MW @ Cell Stacks	2 MW @ Cell Stacks

* Each platform is scalable at 50 Nm^3/hr increment.

* With hydrogen dryer

Summary specifications are subject to change. For full technical specifications, please contact Proton OnSite.

Proton Care

Global Service and Support Solutions

Proton OnSite is proud to offer products and services that assure a superior level of customer satisfaction. Our uncompromising attention to excellence and quality enables us to deliver, install and support gas generation solutions on every continent. With proven reliability and world-class coverage in over 75 countries, we continue to foster a strong network of lasting relationships with our customers.

Let us help you, visit www. protononsite.com to learn more!

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Certified to ISO 9001:2008

PD-0600-0115 Rev. A