



Delivering Zero-Carbon Power
Through Hydrogen Fuel Cells –
One Cell at a Time



PEM Fuel Cells OEM for Stationary Power Applications with proprietary¹ design and international standards²



High Efficiency – Up to 60% system efficiency



Long Lifetime – >25,000 hrs (current), 40,000 hrs (future)



Modular & Plug-and-Play – Scalable, easy to integrate

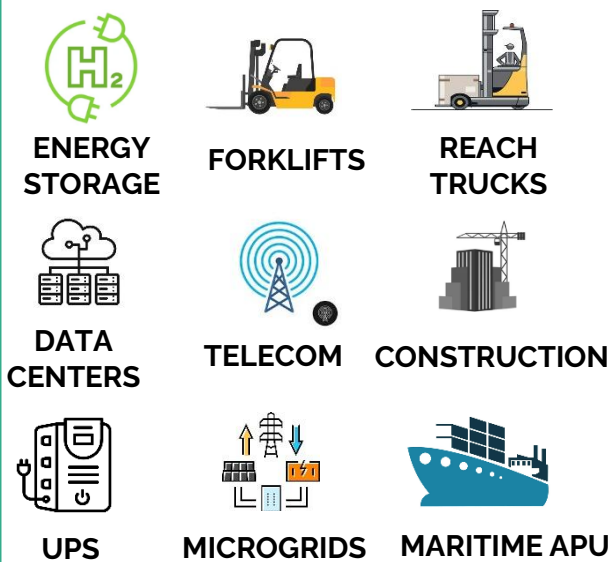


Service & Support – Performance guaranteed



Lowest Cost of Ownership – Up to 40% lower cost

***Focus on
Stationary
Power
Applications***



¹ & ² Certification in Progress



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AIR-COOLED SERIES

500 W – 3 kW PEM Fuel Cell Power System

Compact. Clean. Reliable.



0.5 – 3 kW

Rated power (DC)

45 – 50%

System efficiency
(LHV)

95 – 97%

Hydrogen
utilization

< 30 s

Start-up time

KEY TECHNICAL PARAMETERS

Rated power	500 W – 3,000 W (DC)
Output voltage	12 – 96 VDC, configurable
Fuel cell stack	PEM stack, graphite bipolar plates
System efficiency (LHV)	45 – 50% at nominal conditions
Hydrogen purity	≥ 99.97%
Hydrogen utilization	95 – 97%
Start-up time	< 30 s
Cooling	Air-cooled, no liquid coolant loop
Communications	Modbus / CAN
Protection	Voltage, current, temperature, low H ₂ pressure, short circuit, reverse polarity
Operating altitude	Up to 4,000 m
Operating temperature	–20 to +50 °C

Own PEM stack

Proprietary PEM stack and controls, built in India

Built to spec

Output, enclosure and controls tailored in-house

Lower TCO

Up to 40% lower lifecycle cost, local build

Local service

Engineering and support teams in Noida and Chennai



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LIQUID-COOLED SERIES

5 kW – 2 MW PEM Fuel Cell Power System

Scalable. Clean. Continuous.



5 kW – 2 MW

Rated power

52%

System efficiency

25,000 h

System lifetime

IP5X

Degree of
protection

KEY TECHNICAL PARAMETERS

Rated power	5 kW – 2,000 kW, modular
Output voltage	415 VAC, 3-phase
Inverter	Hybrid
Fuel cell stack	PEM fuel cell stack
System efficiency	52%
Hydrogen purity	≥ 99.97%
Cooling	Liquid-cooled, closed coolant loop
System lifetime	25,000 h
Communications	Modbus / CAN
Degree of protection	IP5X
Ambient humidity	< 80%
Operating altitude	Up to 5,000 m
Operating temperature	-40 to +50 °C

Proven at 3,650 m

Microgrid running in
Leh, Ladakh, through
Himalayan winters

End-to-end

Design, integration,
commissioning and
O&M in-house

Guaranteed life

Over 25,000 h,
warranty-backed
performance

Own PEM stack

Proprietary stack and
BoP, local spares and
service



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REFERENCE FUEL CELL PROJECTS

Fuel cell projects from Ladakh to Chennai

Six states and UTs, at sites up to 3,650 m altitude

COMPLETED PROJECTS

25 kW

Leh, Ladakh

Fuel cell with 100 kW electrolyser microgrid **2023**

25 kW

Jhakri, Shimla, Himachal Pradesh

PEM fuel cell system **2023**

15 kW

Leh, Ladakh

PEM fuel cell microgrid, 41 kW stack **2023 – 2026**

10 kW

Bharuch, Gujarat

Hydrogen fuel cell system **2025 – 2026**

3 kW

Chennai, Tamil Nadu

Air-cooled fuel cell stack **2026**

0.5 kW

Noida, Uttar Pradesh

Air-cooled fuel cell stack **2026**

0.5 kW

Pune, Maharashtra

Fuel cell system **2025 – 2026**

PROJECTS UNDER EXECUTION

0.5 – 3 kW

Air-cooled

5 – 240 kW

Liquid-cooled

LOCATIONS

Gujarat · Tamil Nadu ·
Uttar Pradesh · Kerala

APPLICATIONS

Microgrid · Telecom · R&D · Defence

Imagine Hydrogen Pvt. Ltd. H₂ Carbon Zero (H₂CO)

NOIDA (HQ) · CHENNAI · BILASPUR

www.umathe.co.in · www.h2co.com

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Capacities are rated fuel cell output; several projects delivered through EPC partners.