

PEM Electrolyser System



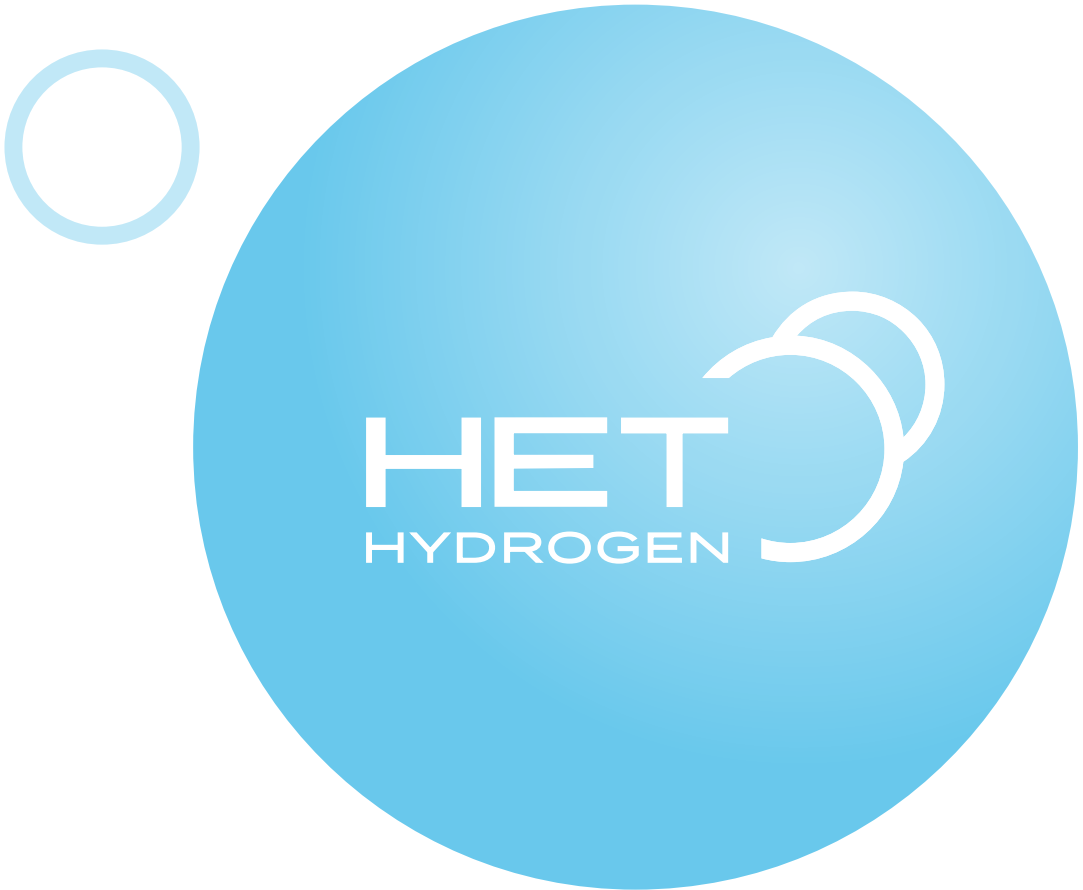
Core Advantages

- High performance, high efficiency, compact design.
- Flexible power supply options, compatible to renewable energies.
- Exemplary safety evaluation and validation complying with key codes and standards.
- HET's HyAIOps operating system ensures safety, reliability, and 24x7 automatic operation.



Products	HET-P1000	HET-P200	HET-P100	HET-P50	HET-P10	HET-P2
*H ₂ production (Nm³/h)	1000	200	100	50	10	≤2
Power supply (customizable)	13.8kV/10kV	13.8kV/10kV/480V	480V/380V	480V/380V	480V/380V	480V/380V
Max. H ₂ pressure (MPa _g)	2.0 (3.0 on request)					
H ₂ purity	99.999%					
Stack power consumption (kWh/Nm³)	3.6 ~ 4.4					
Operating range	5% ~ 120%					
Ambient temperature (°C)	-20 ~ 50					
Start time from standby/cold	< 10s / 10min					

*Modular Design

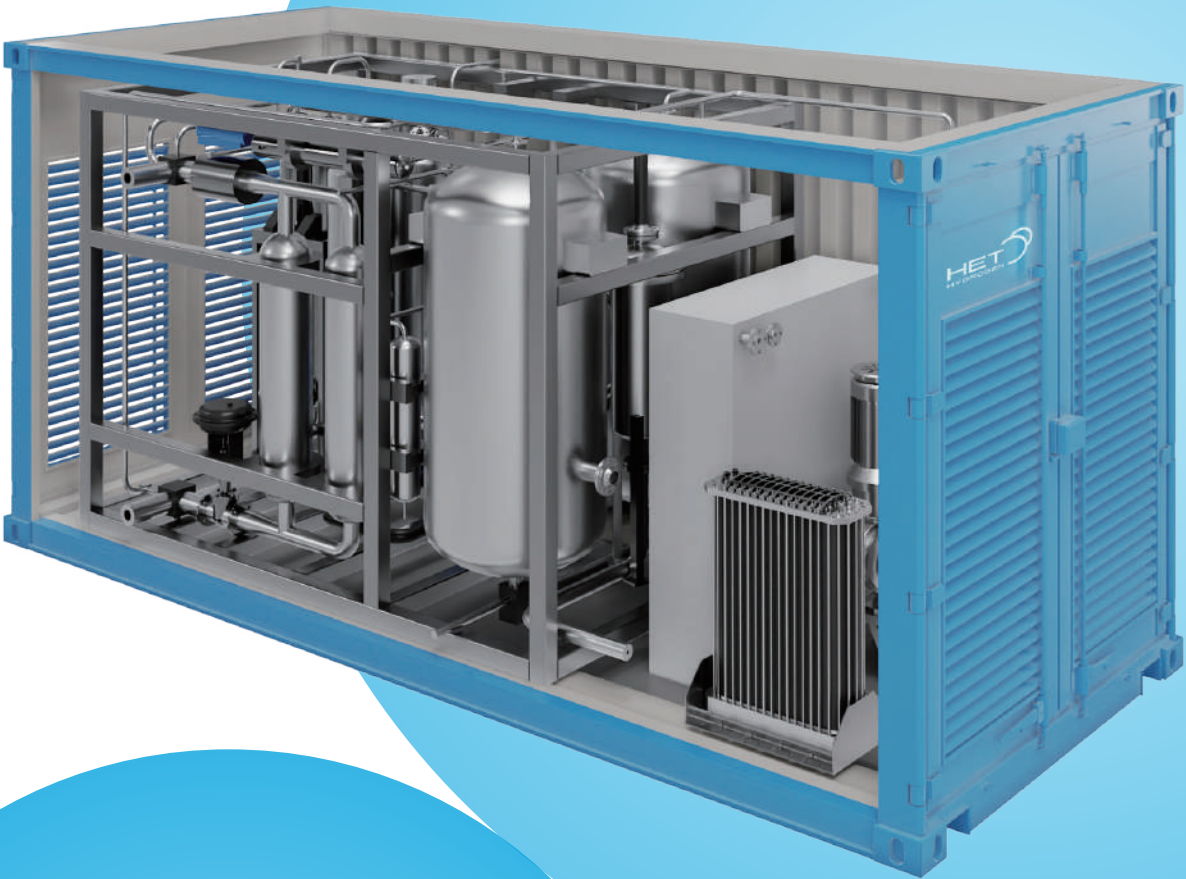


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HET HYDROGEN

PEM&AEM Electrolyser Technology Innovator



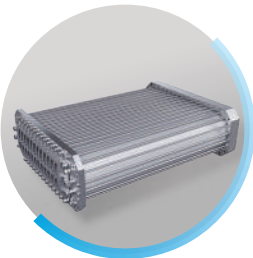
Company Overview

HET Hydrogen Pte Ltd (HET) is a hydrogen electrolyser technology innovator, able to deliver turnkey equipment solutions for green hydrogen projects. HET leverages Horizon's extensive technology and commercialization experience for over 20 years in PEM electrolyser and fuel cell products, with patented and in-house technology of core materials including membrane, catalyst, bipolar plate, stack, etc.

In February 2024, HET announced a scientific breakthrough in AEM technology. HET's new multi-layered, radical scavenging membrane achieves superior ion conductivity while ensuring prolonged mechanical strength and chemical stability, making it suitable for widespread commercialisation of next generation AEM electrolyzers. HET is launching MW-Scale AEM electrolyser in 2024.

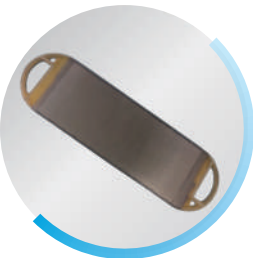
HET's PEM&AEM electrolyzers are compatible to renewable energies, providing most cost-competitive green hydrogen solutions to customers globally.

Proprietary In-house PEM Technology



Electrolysis Stack

- Stack efficiency: 3.6~4.4 kWh/Nm³.
- Modular 1MW single stack, easily to scale-up.



Bipolar Plate (BPP)

- Proprietary bipolar plates, for low cost and high-volume production.
- In-house technology providing long durability and high efficiency.



Membrane Electrode Assembly (MEA)

- Advanced catalyst coated membrane (CCM) for high efficiency and high-volume production.
- In-house catalyst development to reduce Ir loading for lower cost.



2023

1st MW-scale PEM electrolyser installed and commissioned successfully, for an integrated project including hydrogen refueling station and fuel cell test centers.



2015

Launched electrolyser for uninterruptible power supply.



2017~2018

Launched electrolyser for micro-grid.

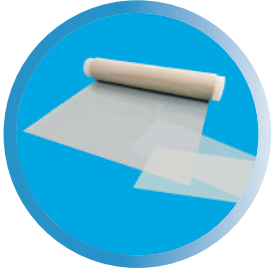


2008~2010

Horizon initiated hydrogen production technology in 2008, and successfully launched Hydrofill – a mobile water electrolysis device in 2010, which has been sold over 5,000 units to 80 countries and regions globally.

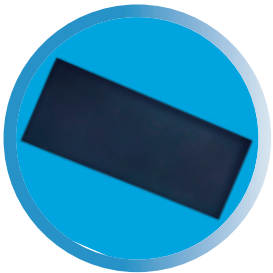
PEM Electrolyser Applications

Proprietary In-house AEM Technology



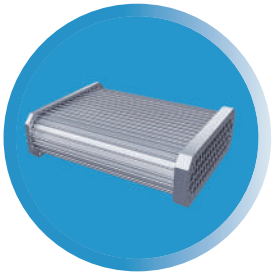
Anion Exchange Membrane (AEM)

Superior ionic conductivity, mechanical strength and chemical stability.



Porous Transport Layers (PTL)

In-house PTL technology with novel electrode designs, yield substantially increased ionic conductivity and electrocatalytic efficiency.



Electrolysis Stack

Novel stack design reaching 500kW~2MW/stack, provides most competitive combination of CAPEX and OPEX for green hydrogen production.

