

MODULAR ELECTROLYSIS

KEY BENEFITS



CLEANER HYDROGEN

NEA|HYTRON PEM is free of harmful chemicals.



QUICK AND FLEXIBLE

NEA|HYTRON PEM's modular structure allows easy installation and scalability.



MINIMUM FOOTPRINT

The containerized system makes planning easy when space is limited.



BROAD MODULATION RANGE

NEA | HYTRON PEM reacts quickly to fluctuations in H₂-demand or renewable energy supply.



CLOUD-CONNECTED

Asset health is always monitored with NEA | XPLORE cloud platform.



CONDITION MANAGEMENT

360° Service. NEUMAN & ESSER service levels give confidence for interruption-free and smooth operation.



FIT FROM THE START

NEA | HYTRON PEM is designed to fulfill hydrogen refueling station standards.



PURITY AS A STANDARD

NEA | HYTRON PEM delivers hydrogen in vehicle fuel-cell compliant quality.



PUT YOUR DECARBONIZATION PROJECTS IN THE HANDS OF A PARTNER OF TRUST

Orchestrating all elements in a hydrogen generation project from planning, implementation to operation is a considerable challenge. Involving the right partners is key and a matter of trust.

NEUMAN & ESSER designs turnkey solutions for the overall optimum through deep inhouse expertise in all relevant modules instead of supplying single components for H₂-generation plants or hydrogen refueling stations (HRS).

Customers benefit from an OEM with decades of H₂-expertise and receive support throughout the entire lifecycle of their decarbonization projects: starting from greenfield studies, through engineering and construction, to digital integration and 360° service during operation.

Contact
NEUMAN & ESSER
Dennis Bauer
T: +49 2451 481 168
E: dennis.bauer@neuman-esser.de



CARING FOR CLEAN INDUSTRY

An Integrated Solution Use Case

NEA | HYTRON PEM

QUICK FACTS

Nominal Power	[MW]	1	2	5	10
Output	[kgH ₂ /day]	430	860	2,150	4,300
System Power Consumption	[kW/kgH ₂]	53			
Modulation Range (per stack)		20% - 100%			
H ₂ Pressure	[bar(g)]	30			
O ₂ Pressure	[bar(g)]	<= 10			
H ₂ Quality		Hydrogen Fuel Ready (SAE J 2719 / ISO14687:2019)			
H ₂ O Consumption	[l/kgH ₂]	19			
H ₂ O Quality Required		EU Directive 2020/2184-EU			
Temp. Range	[°C]	-20C° - +40C°			
Noise Level		Optimized for Installation in Urban Environments			
Input Voltage Required	[kV]	Medium Voltage (e.g., 20kV)			
Power Cube		Rectifier and Transformer Unit delivered to Customer Requirements (Customized)			

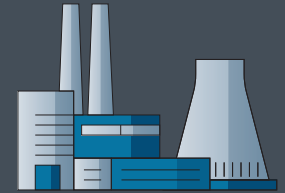
All NEA | HYTRON PEM systems are compliant with ISO 19880 for hydrogen refueling station (HRS) applications. For individual/large scale applications, a local NEUMAN & ESSER Sales expert is ready to assist.

SAVINGS OF 1,600t CO₂ THROUGH SECTOR COUPLING

AN INDUSTRY USE CASE

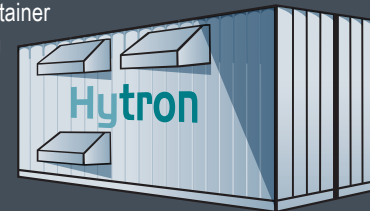
PROJECT DEVELOPMENT

An industrial company requiring steam boiling for technical processes wishes to become independent from fossil energy. In the first step as a general contractor for turnkey hydrogen production solutions, NEUMAN & ESSER develops and engineers a full-scope sector coupling project including electrolysis and utilization of excess heat and O₂.



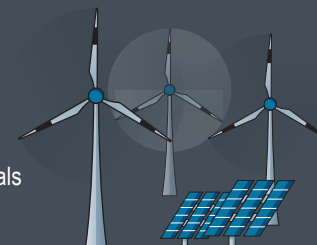
ELECTROLYZER SOLUTION

The heart of the overall solution: the NEA|HYTRONPEM electrolyzer. Easily installed container modules, delivering the highest standards in H₂ quality and operation.



GREEN HYDROGEN

Water electrolysis with a NEA|HYTRON PEM, means making green hydrogen from renewable sources even cleaner due to no harmful chemicals involved in PEM technology.



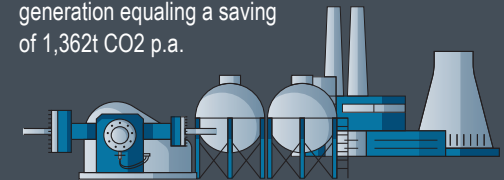
DIGITALIZED SERVICE

Customer confidence: All hydrogen-related processes are monitored remotely to support trouble-free production and processing. The basis for a 360° Service Level Agreement with NEUMAN & ESSER.



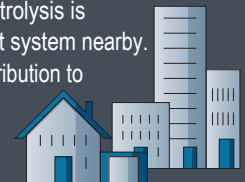
COMPRESSION FOR STEAM GENERATOR

A NEA|HOFER MKZ Compressor System creates the pressure required for the customized storage vessels to have the right H₂-supply when it is needed for steam generation equaling a saving of 1,362t CO₂ p.a.



FEEDING A DISTRICT HEAT SYSTEM

The excess heat from the electrolysis is used to feed into a district heat system nearby. This translates to another contribution to stopping climate change of 238t CO₂ savings p.a.



O₂ FOR SEWAGE TREATMENT PLANT

Additional benefit: The oxygen produced during the electrolysis as a by-product accelerates wastewater recycling at the municipal sewage treatment plant.

