



NEUMAN & ESSER



NEA|HYTRON

Clean PEM Electrolysis

NEA | HYTRON PEM

Modularized Turnkey Solutions

Decarbonization projects, at the pace and scale required, face considerable challenges. Initiatives are taking up momentum. Involving the right partners is key, and a matter of trust. For about a century NEUMAN & ESSER (NEA GROUP) has been supplying H₂, O₂ and other process gas compressor units to the industry. Through the permanent development of its proficiencies NEUMAN & ESSER has extended its portfolio in the last decade.

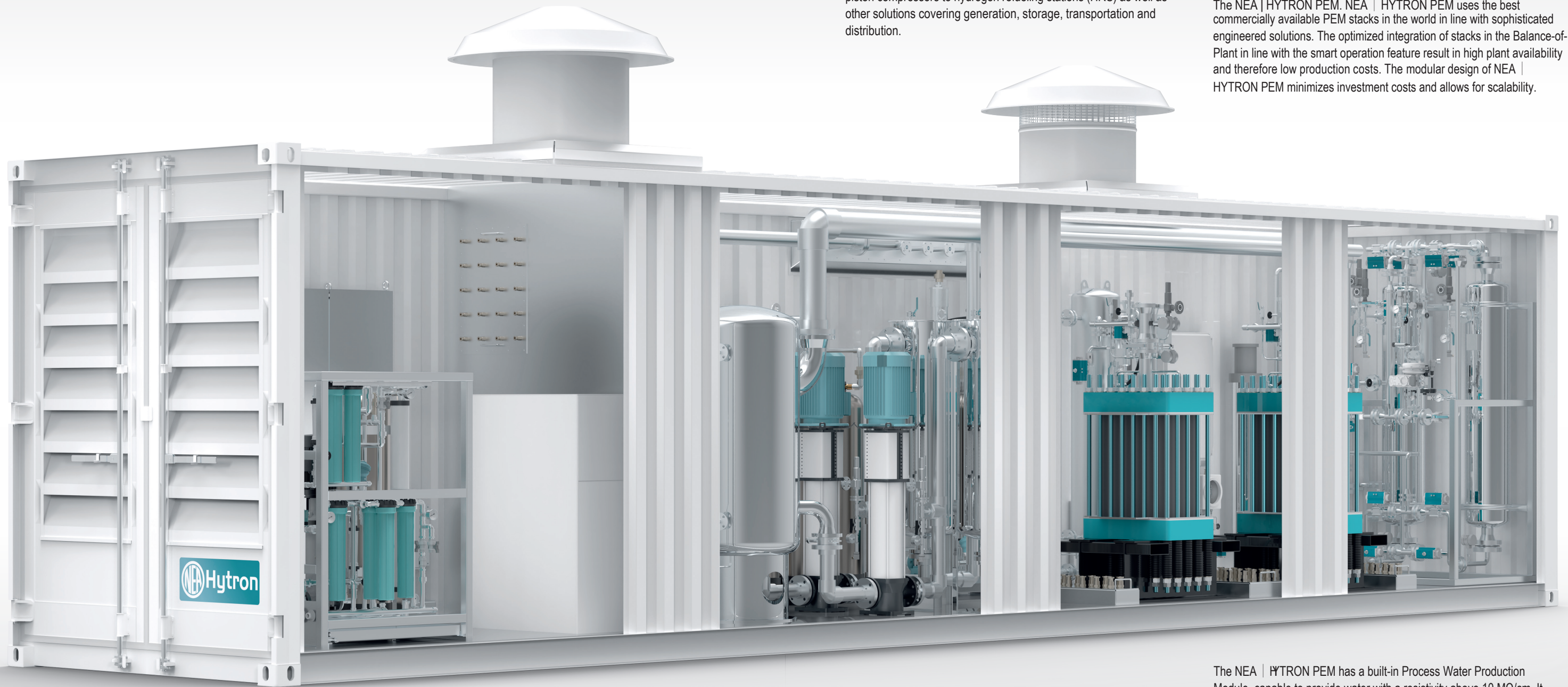
NEUMAN & ESSER is now a one-stop shop for integrated solutions along the hydrogen value chain. The unique NEUMAN & ESSER product portfolio ranges from electrolyzers, reformers, diaphragm and piston compressors to hydrogen refueling stations (HRS) as well as other solutions covering generation, storage, transportation and distribution.

NEUMAN & ESSER has also developed comprehensive services, starting from feasibility studies, through project engineering and construction management, to digital integration and 360° service during operation.

This ensures a customer-centric approach to upstream and downstream hydrogen solutions. In this way customers benefit from an OEM expert integrating all elements to an overall optimum and providing support during the full lifecycle of a hydrogen plant.

Contributing to the energy transition, the latest innovation is the development of a modular and containerized elec-trolyzer with PEM technology:

The NEA | HYTRON PEM. NEA | HYTRON PEM uses the best commercially available PEM stacks in the world in line with sophisticated engineered solutions. The optimized integration of stacks in the Balance-of-Plant in line with the smart operation feature result in high plant availability and therefore low production costs. The modular design of NEA | HYTRON PEM minimizes investment costs and allows for scalability.



Due to a high degree of design flexibility, customer-specific indoor and outdoor configurations are available in a standardized container solution operating in the ambient temperature range from -20° to 40° C. Kits for challenging conditions are available, e.g. Low Noise Option, High Purity Option.

The plant productivity depends on the number of electrolyzer stacks with each 1 MW stack generating up to 200 Nm³/h of hydrogen at a discharge pressure of more than 30 bar(g). At the same time half the volume flow of O₂ is produced with a pressure of up to 10 bar(g).

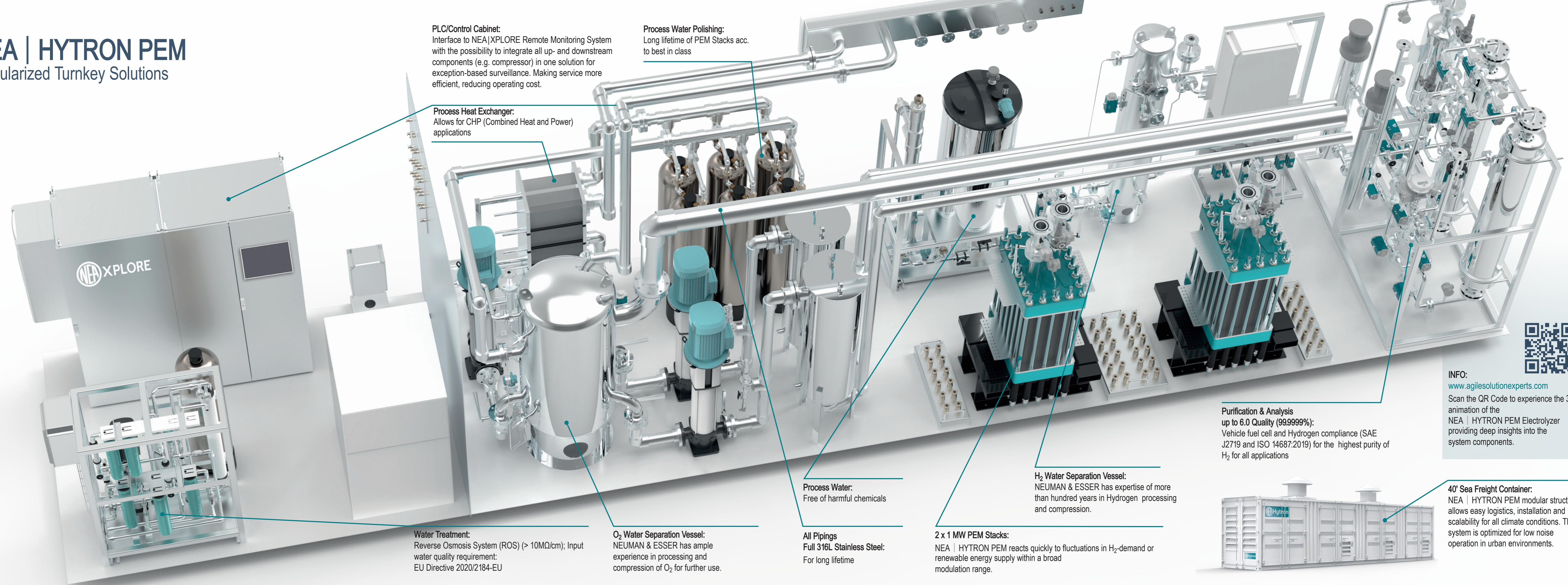
The NEA | HYTRON PEM has a built-in Process Water Production Module, capable to provide water with a resistivity above 10 MΩ/cm. It is a customizable technology that can be tailored to the water conditions on site.

Further components belonging to the scope of supply: Thermal management system, a Hydrogen Purification, Dehumidification and Deoxidizer Module, including per-manent gas analysis and quality monitoring to ensure the desired gas quality (up to 6.0).

The power cube, consisting of a separate containerized set of transformers and rectifiers, is tailor-made to the electric grid conditions on site.

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PLC/Control Cabinet:
Interface to NEA|XPLORE Remote Monitoring System with the possibility to integrate all up- and downstream components (e.g. compressor) in one solution for exception-based surveillance. Making service more efficient, reducing operating cost.

Process Water Polishing:
Long lifetime of PEM Stacks acc. to best in class

Process Heat Exchanger:
Allows for CHP (Combined Heat and Power) applications

Water Treatment:
Reverse Osmosis System (ROS) (> 10MΩ/cm); Input water quality requirement: EU Directive 2020/2184-EU

O₂ Water Separation Vessel:
NEUMAN & ESSER has ample experience in processing and compression of O₂ for further use.

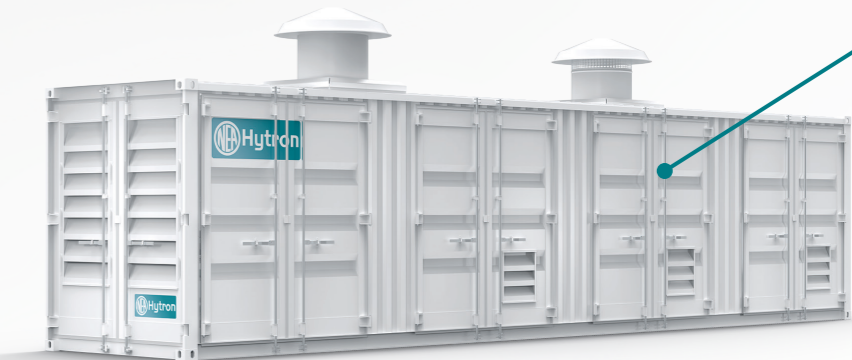
Process Water:
Free of harmful chemicals

All Pipings Full 316L Stainless Steel:
For long lifetime

H₂ Water Separation Vessel:
NEUMAN & ESSER has expertise of more than hundred years in Hydrogen processing and compression.

2 x 1 MW PEM Stacks:
NEA | HYTRON PEM reacts quickly to fluctuations in H₂-demand or renewable energy supply within a broad modulation range.

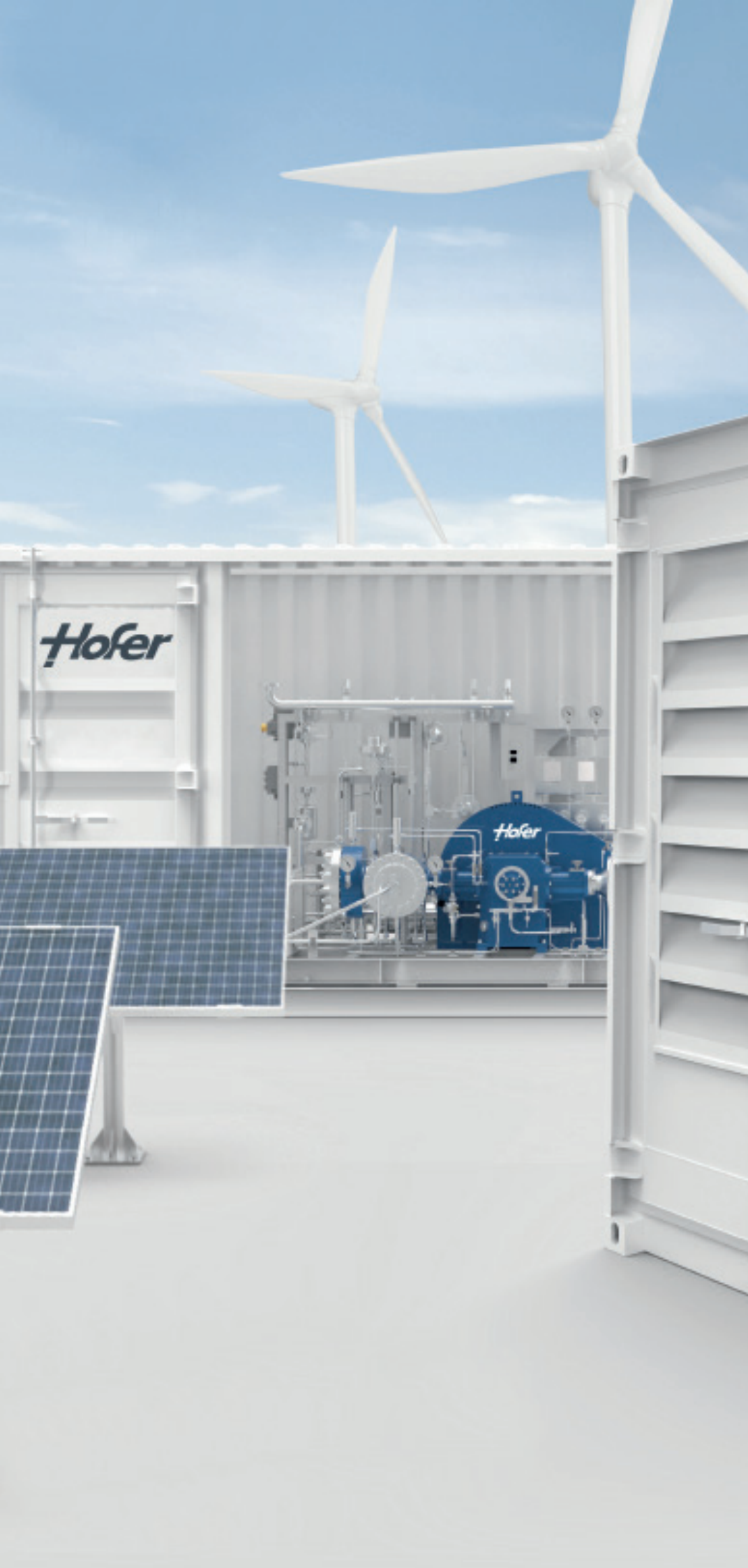
Purification & Analysis up to 6.0 Quality (99.9999%):
Vehicle fuel cell and Hydrogen compliance (SAE J2719 and ISO 14687:2019) for the highest purity of H₂ for all applications



40' Sea Freight Container:
NEA | HYTRON PEM modular structure allows easy logistics, installation and scalability for all climate conditions. The system is optimized for low noise operation in urban environments.

INFO:
www.agilesolutionexperts.com
Scan the QR Code to experience the 3D animation of the NEA | HYTRON PEM Electrolyzer providing deep insights into the system components.





NEUMAN & ESSER
Werkstr. o. Nr.
52531 Übach Palenberg,
Germany
Tel: +49 2451 481 01
www.neuman-esser.com

