

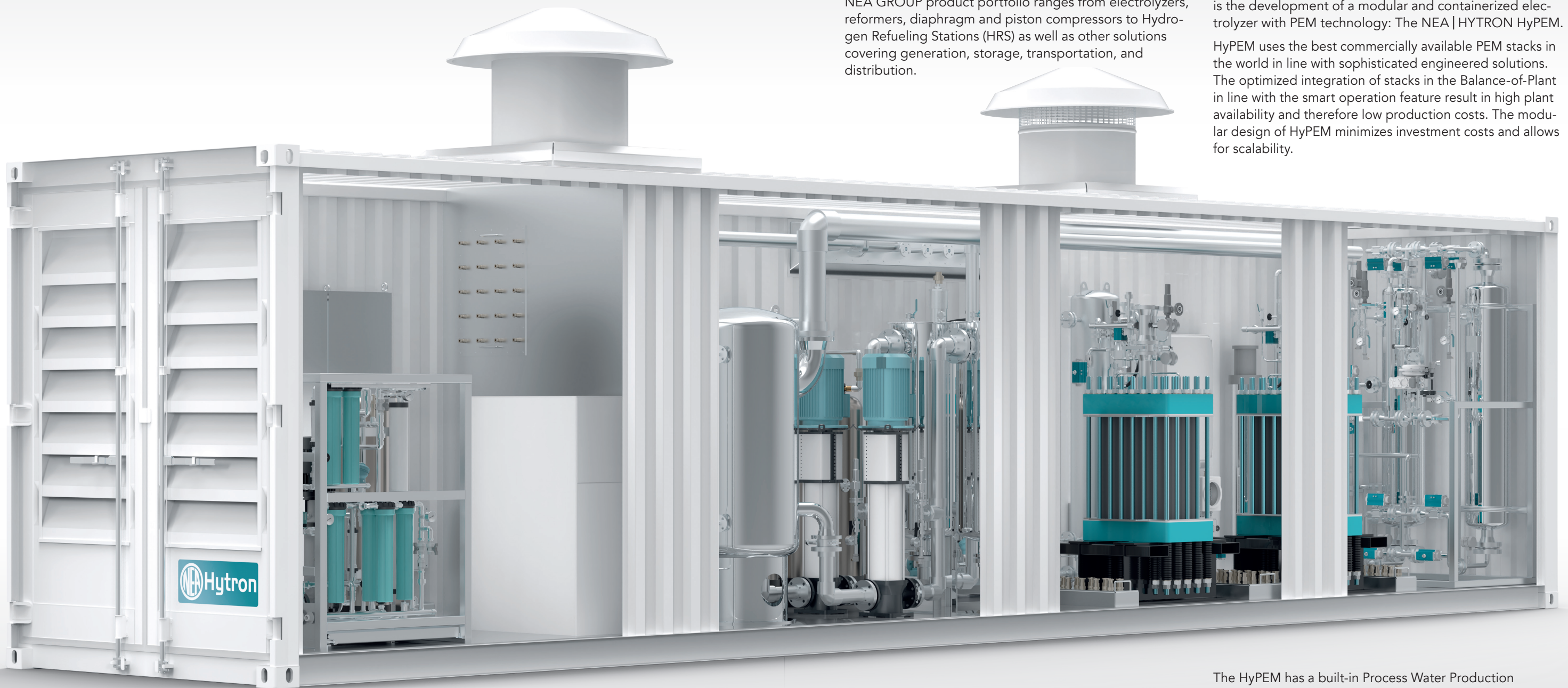
 Hytron

NEA | HYTRON

Clean PEM Electrolysis

NEA | HYTRON HyPEM

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 become much more in the last decade.

NEA GROUP is now a one-stop shop for Integrated Solutions along the Hydrogen Value Chain. The unique NEA GROUP 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 electrolyzer with PEM technology: The NEA | HYTRON HyPEM.

HyPEM 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 HyPEM 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 an output 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).

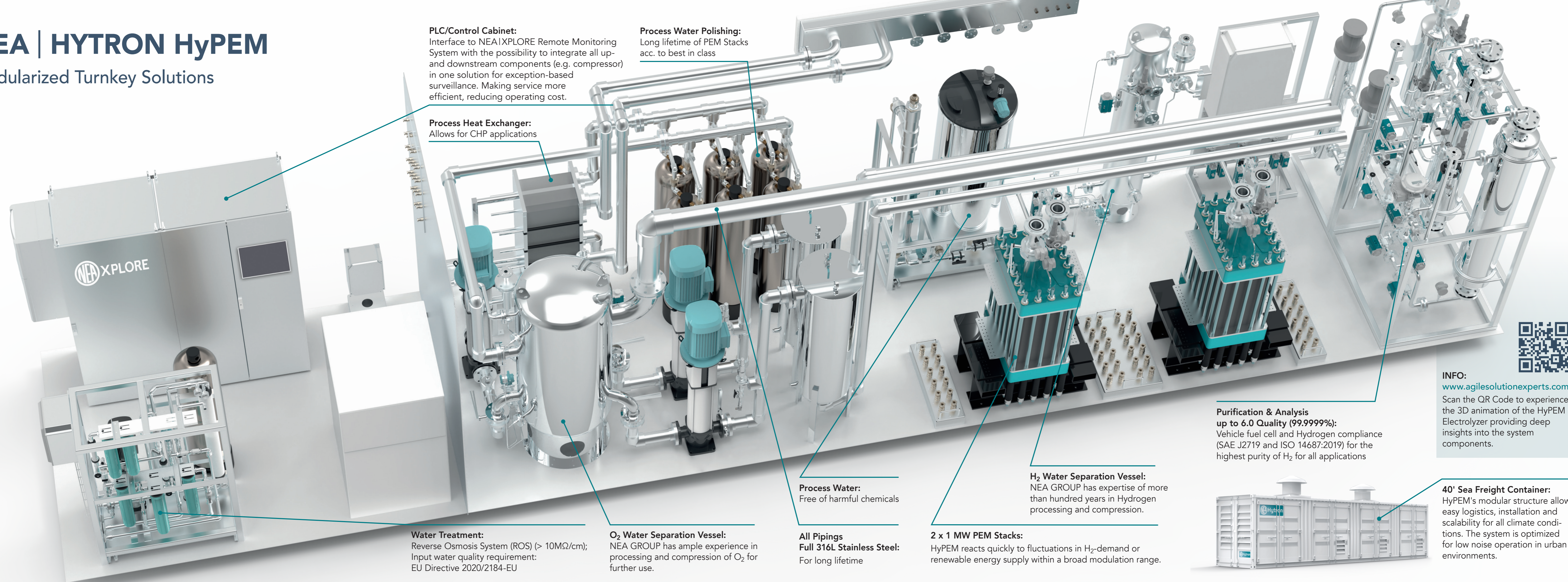
The HyPEM has a built-in Process Water Production Module, capable to provide water with a resistivity above 10 MΩ/cm. It is a customizable technology that can be tailored to the water conditions on site.

Further components belonging to the scope of supply: Thermal management system, a Hydrogen Purification, Dehumidification and Deoxidizer Module, including permanent 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 Heat Exchanger:
Allows for CHP applications

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

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

O₂ Water Separation Vessel:
NEA GROUP has ample experience in processing and compression of O₂ for further use.

Process Water:
Free of harmful chemicals

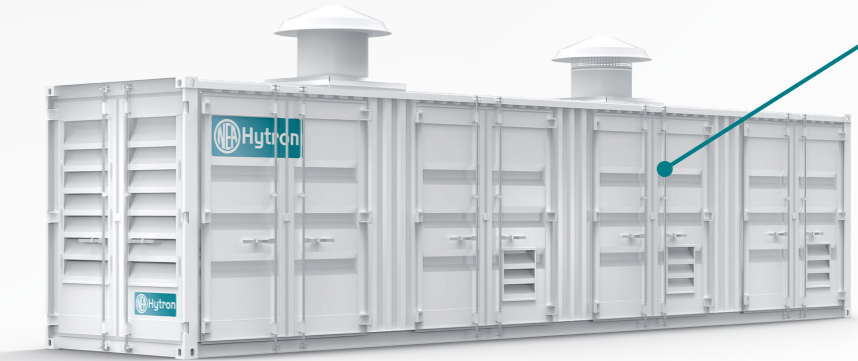
All Pipings Full 316L Stainless Steel:
For long lifetime

H₂ Water Separation Vessel:
NEA GROUP has expertise of more than hundred years in Hydrogen processing and compression.

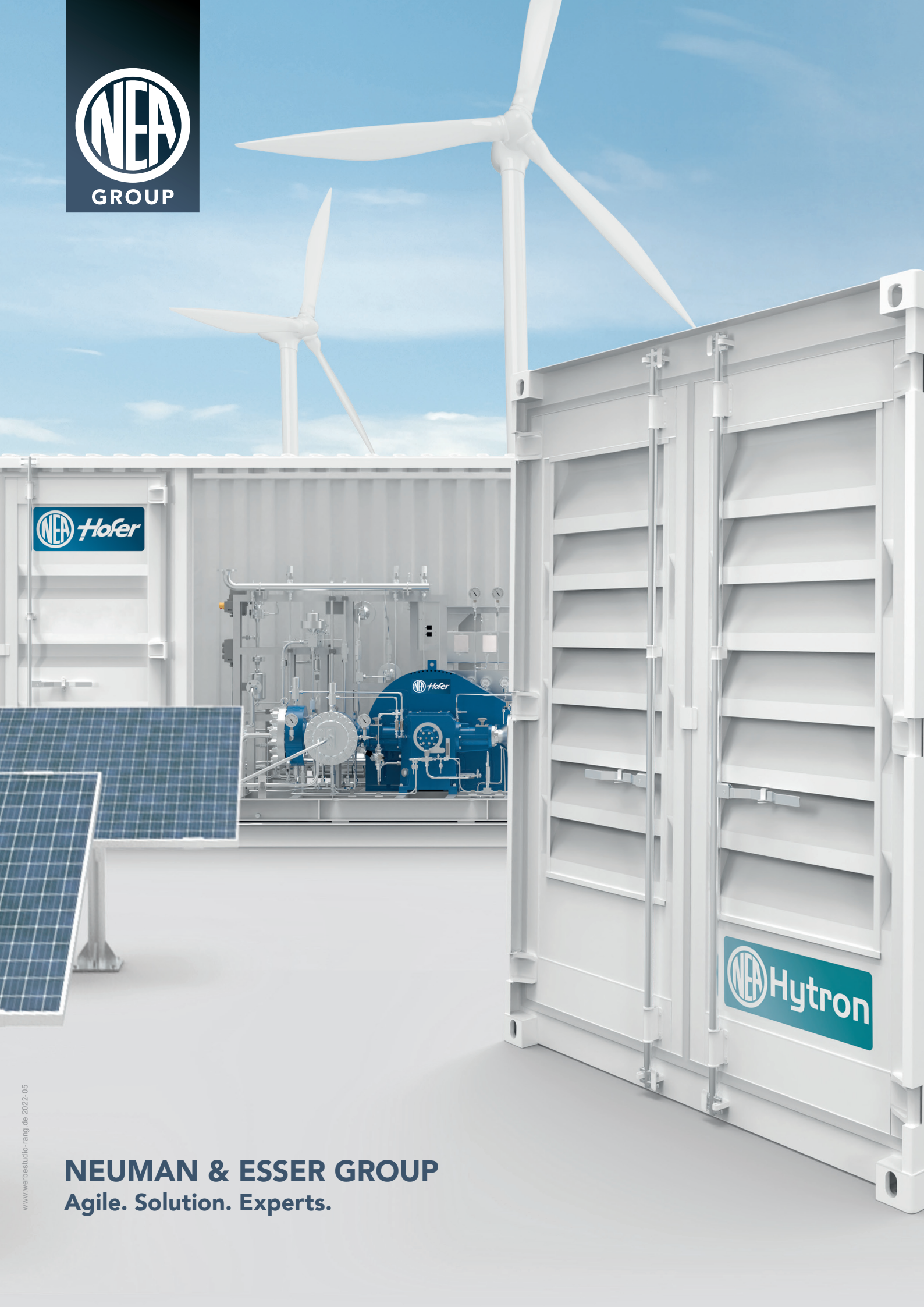
2 x 1 MW PEM Stacks:
HyPEM reacts quickly to fluctuations in H₂-demand or renewable energy supply within a broad modulation range.

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

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



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



NEUMAN & ESSER GROUP
Agile. Solution. Experts.