

MAN Hydrogen Electrolyzer and Distribution System

Introducing MAN's Hydrogen Electrolyzer & Distribution System (HEADS), a pioneering solution at the forefront of sustainability. By harnessing the power of green energy sources, HEADS efficiently transforms them into hydrogen, offering a versatile and eco-friendly option for both local consumption and export. This technology represents a significant stride towards a more sustainable future, aligning perfectly with the global shift towards cleaner energy solutions.

Benefits at a glance

- Modular and scalable design
- Client-centric customization: Add-ons for diverse client needs
- All-in-one solution: Production, storage, and distribution of hydrogen from a single provider
- H-TEC Modules: Integrated part of the system
- Turnkey delivery: Hassle-free from start to finish
- Global support: Benefit from our worldwide service network



Green hydrogen for a zero-emission future

Operational overview

MAN Hydrogen electrolyzer and distribution systems are scalable and can supply gas streams corresponding to 50 MW in its standard format. The system includes production of green hydrogen from PEM Electrolyzers, buffer storage, compression, high pressure storage, pressure control, export and supervision by the power control and safety system

General competence

The MAN organization holds deep gas handling expertise in engineering, production, and installation. This empowers us to customize and enhance the hydrogen infrastructure to meet our clients' specifications. From initial feasibility studies to comprehensive engineering, procurement, and construction (EPC) turnkey solutions, we stand ready to guide and assist our customers throughout every stage of implementing a hydrogen electrolyzer and distribution system.

Turnkey supply

MAN Cryo's turnkey supply includes everything from design and procurement to on-site installation and commissioning. This results in a fully operational and ready-to-use system.

Site specific design:

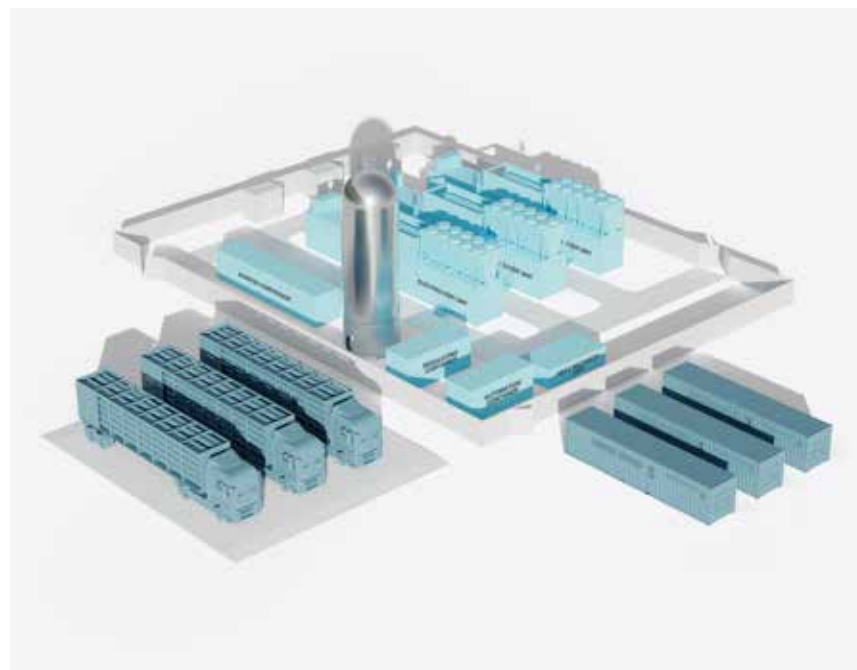
- plot plan
- layouts
- foundation and loads layout
- hazardous area layouts
- design of interconnecting piping
- cable routing
- signs
- labeling

Site installation:

- erection of equipment
- installation of interconnecting piping
- cable routing
- pre-commissioning activities

Commissioning:

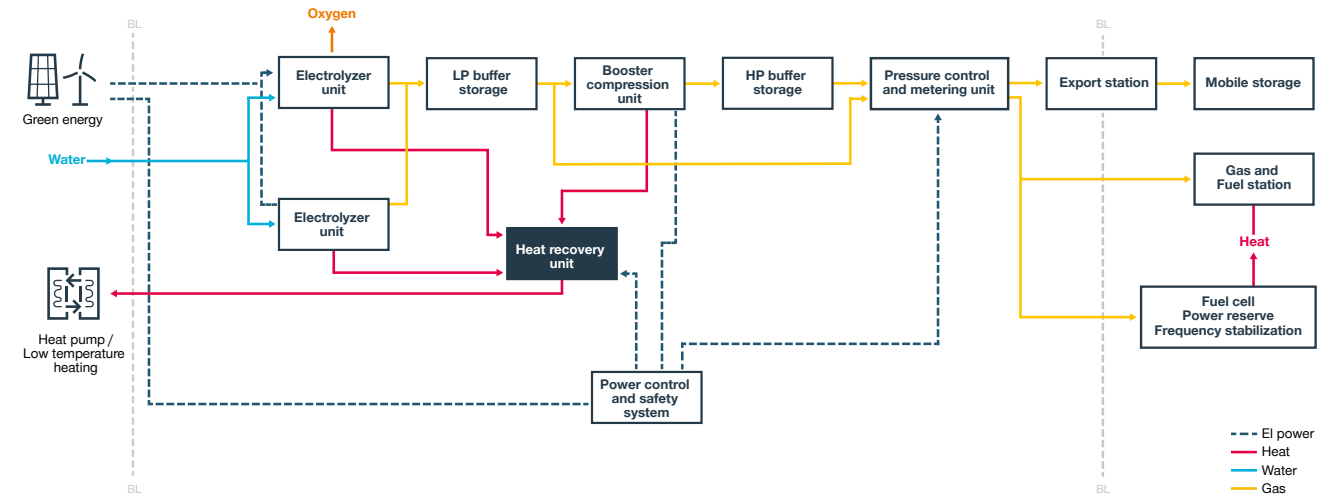
- loop and functional testing
- third-party mechanical and electrical safety system verification
- test runs
- performance tests



Typical system with electrolysis, storage, compression and export

Key components

The system parts can be provided as package units or as a turnkey delivery with installation works, commissioning, and performance verification.



PEM Electrolyzer

The H-TEC electrolyzer is a Proton Exchange Membrane (PEM) electrolyzer designed to produce hydrogen gas through water electrolysis.

Booster compression unit (BCU)

The hydrogen booster compression unit is a compact system designed to compress hydrogen gas.

Hydrogen storage

The storage is designed to accommodate hydrogen gas safely. The operating pressure range ensures correct capacity and supply pressure to downstream systems.

Hydrogen export stations

The hydrogen export stations are designed to efficiently and safely load mobile storage with high-pressure hydrogen gas.

MAN pressure control unit (PCU)

The pressure control unit handles pressure control, temperature control, metering for custody transfer, and interconnections between subsystems. Additionally, this unit can facilitate the blending of gas streams, for example, hydrogen and methane.

MAN regasification and heat exchanger unit (RHU)

During the electrolysis reaction and later compression, heat is generated and must be efficiently managed. The Heat Recovery Unit (HRU) is designed to utilize this excess heat and transfer it to a low-temperature district heating system or a heat pump. Centrifugal pumps on the primary and secondary sides force the cooling medium through heat exchangers and maximize energy efficiency.

MAN power, safety, and control system (PSC)

A stand-alone control system governs the whole hydrogen system. The control system receives signals from instruments and performs seamless actions depending on which mode of operation is selected.

MAN Energy Solutions Sverige AB

Oljevägen 105

418 78, Goteborg, Sweden

P + 46 (0)31 17 62 95

on-shoresales-cryo@man-es.com

www.man-es.com/mancryo

All data provided in this document is non-binding. This data serves informational purposes only and is not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.