

HYDROGEN REFUELING STATION



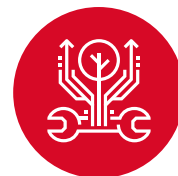
DESIGN
MANUFACTURING
SERVICES



Design



Manufacturing



Services



DESIGNING TOMORROW'S MOBILITY

MADIC group is developing, installing and servicing multi-energy stations for more than 50 years. With more than 6,000 fuel stations, 15,000 electric charging points and 25,000 payment terminals, MADIC group is a trusted partner to support you in all your projects.

It focuses its growth on sustainable development's strategy, with respect for people, the company and the planet. Committed to ecological transition, the MADIC group is investing in zero-emission mobility with a turnkey hydrogen refueling station solution.



YOUR TAILOR-MADE STATION

OUR COMMITMENTS

Flexibility: Each station can be equipped with one or several dispensing devices delivering 350 (H35 / H35HF) and / or 700 bar (H70 / H70HF)

Availability:

- Equipment availability rate >95%
- Guarantee of maximum utilization thanks to redundancy equipment (compressors, sensors, etc.)
- Back-up source: possibility to connect to an alternative source (tube trailer type)
- Operating temperature: -40 to +50°C

Rapidity: Refueling is done in a few minutes only

OUR STRENGTHS



Reliability and efficiency of piston compressors



Hydrogen cooling (down to -40°C) with natural and eco-friendly refrigerants such as CO2 (R744)



Secure payment terminals

MODULARITY

Any type of source:

- Electrolyser
- Tube trailer / Cylinders
- Pipeline

For any type of station:

- <40 kg/day
- 40-200 kg/day
- 200-2000+ kg/day

For multiple vehicles:

- Forklifts
- Cars
- Buses
- Trucks
- Boats
- Trains

Modular and scalable design (expandable storage capacity and compression)

INNOVATION



THE SAINT-ANDRÉ-DE-CUBZAC FACTORY (FRANCE - 33)

The new industrial headquarters of the MADIC group develops its expertise in 3 areas :



ENERGIES
& automotive environment



PAIEMENTS
supervision



CUSTOMER EXPERIENCE
datalized

- 14,000 m² of factory and 4,000 m² of offices
- An R&D center of 80 engineers
- Creation of new assembly lines including Hydrogen Distribution
- World Center (outside of the USA) for electronic repair PAYMENTS and SYSTEMS
- A secure environment certified by the GIE Cartes Bancaires
- Winner of the Fond de Modernisation Automobile





➤ GUARANTEE QUALITY AND PROXIMITY OF OUR SERVICES



450
technical
staff

➤ OUR EXPERTISE

Tailor-made and optimal sizing of the station according to your needs (quantity per filling, daily total quantity, filling sequences, back-to-back, number of load points, pressures).

➤ SÉCURITÉ

Fast and international deployment of hydrogen mobility requires stringent regulations, particularly in terms of security for users and operators. The MADIC group is committed to respecting following standards and requirements :

- CE and PED directive
- Hydrogen refueling stations: ISO 19880-X series
- Filling protocol: SAE J2601
- Vehicle / station communications: SAE J2799
- Vehicle / station connections: EN ISO 17268
- Hydrogen purity: ISO 14687

Realization of a risk analysis, definition of ATEX zones, securing the installation (shut-off valves, pressure relief devices, vents, sensors, etc.)

IFSF secure payment protocol

➤ OUR JOBS

- Advice
- Engineering
- Distribution
- Installation
- Commissioning
- Inspection
- Predictive, regulatory, preventive and curative maintenance

➤ OUR STRENGTH: MASTERING THE METROLOGY CHAIN

➤ QUALITY

System (ISO 9001, 14001, 45001) and technical qualifications:

- Legal metrology manufacturer (EMLAE, DLS, OIML)
- Legal metrology repair (EMLAE, DLS, OIML)
- Periodic verification (EMLAE, CRM, IPFNA)
- ICPE inspections, sealing of buried tanks
- QUALIFELEC (LCPT, IRVE, SPV)
- KIWA
- ATEX
- TQM
- EMV
- PCI
- GIE CB
- Visa / Mastercard

24/7 helpdesk - level 1 and 2 assistance

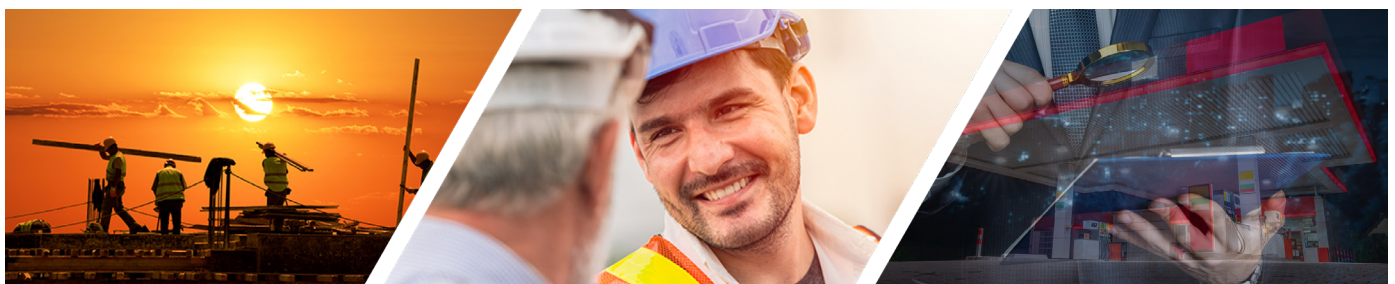
Dedicated technical service – level 3 assistance

Administrative procedures assistance:

- Declaration and authorization

ElysOnline remote supervision system also used on petrol and CNG stations:

- Quickly inform the operator of the state of the station
- Anticipate the interventions to be carried out
- Improve station performance



KEY STEPS IN HYDROGEN DISTRIBUTION



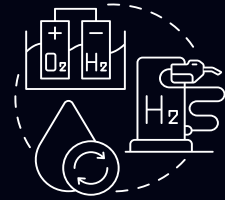
H2 source



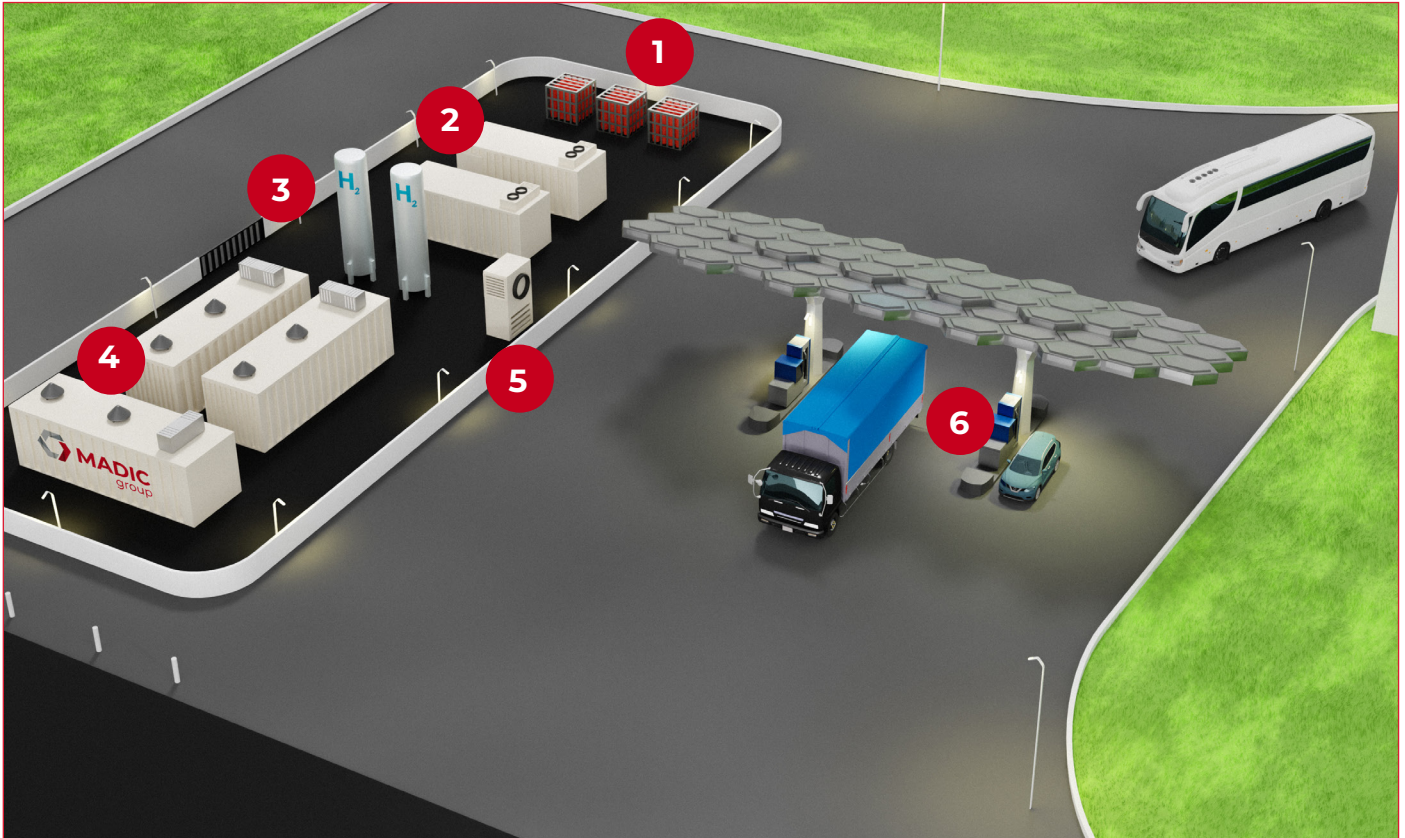
Compression



Cooling



Distribution



EXAMPLE OF TURNKEY HYDROGEN REFUELING STATION

- 1 MP-HP H2 STORAGE
- 2 COMPRESSORS CONTAINERS
- 3 LP H2 STORAGE
- 4 ELECTROLYZER
- 5 H2 T40 COOLING SYSTEM
- 6 H2 DISPENSER



POWERED BY ENERGIES

We design and develop smart, reliable and secure solutions that allow our partners to improve their customer relationships and to promote their products in optimum conditions.



An international presence

1300 employees

100% family owned

51 years' experience

36 sites



CONTACT

MADIC HOLDING
5 impasse des Tourmalines
44300 NANTES
+33 2 40 92 18 58
contact@groupe.madic.com

WWW.GROUPE.MADIC.COM

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