

# OUR H<sub>2</sub> OFFER

## YOUR PARTNER FOR YOUR H<sub>2</sub> SOLUTIONS

### WHO ARE WE ?

For 37 years, Top Industrie has produced a range of high pressure components: valves, fittings, autoclaves, tanks, compressors as well as accessories for pressure ranges from 50 to 7000 bars. Leader in the high pressure market, Top Industrie is evolving towards an integration technology for complex systems.

Today we design and manufacture complete installations. Our core business being the realization of demonstration units (laboratory and industrial), we are always oriented towards the development of new products and new technologies that can integrate a wide range of new means and processes.

Present on five continents, our company continues to grow from year to year with a strong involvement in research, development and emerging technologies.



Vaux le Pénil  
77000



Design offices :  
20 pers.



Top Industrie is a member of:



## Our market: R&D

Top Industrie is actively involved in the development of renewable energies and the widespread use of hydrogen as an energy vector.

# OUR H<sub>2</sub> OFFER

## AN EXPERTISE TECHNOLOGICAL AND TECHNICAL

The safety of the equipment and processes deployed is a major challenge for the development of the hydrogen industry. This issue affects the entire value chain of the H<sub>2</sub> molecule, and is mainly based on the performance of materials, the sealing of systems and the study of processes.

Thanks to its experience in the design and manufacture of equipment for the management of fluids at critical temperatures and pressures, Top Industrie has a great added value for the structuring of the entire value chain of the H<sub>2</sub> industry.

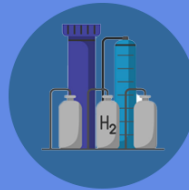
Top Industrie offers a wide range of services, products and equipment dedicated to H<sub>2</sub>

### HYDROGEN PRODUCTION PLANTS



Equipment for HP Electrolysis  
Transport and piping  
By-product valorization  
(equipment for the valorization of waste such as biomass and CO<sub>2</sub>)  
PSA (Separation)  
Creep and fatigue machines

### HYDROGEN STORAGE AND TRANSPORTATION



Complete storage stations  
Liquid storage  
Gas storage  
Creep and fatigue machines,  
Stress corrosion  
Hydrogenation / Dehydrogenation

### FUEL CELL



Valves, fittings, pressure gauges,  
pipe pressure sensors,  
check valves,...

### HYDROGEN STATION



Complete installations for heavy  
and light mobility  
H<sub>2</sub> compressor unit  
Pneumatic and electric  
Valves, fittings, pressure gauges  
pressure sensors, piping,  
check valves, ...

### STATIONARY INSTALLATION FUEL CELL



# OUR H<sub>2</sub> OFFER

## YOUR DEVELOPMENT PARTNER FROM RESEARCH TO INDUSTRY

Study of the behavior of materials in the presence of H<sub>2</sub>  
H<sub>2</sub> embrittlement, creep, ...

### Dedicated Test benches for H<sub>2</sub>

*R&D: materials characterization, permeability, embrittlement  
(alloys, elastomers)*

*Production line: sealing, leakage tests, embrittlement*

*Any specific H<sub>2</sub> test*

Design and manufacture of specific H<sub>2</sub> equipment  
Integration of complete systems

Consulting for the development of specific H<sub>2</sub> products

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## SOME ACHIEVEMENTS



### Traction machine self-compensating

H<sub>2</sub> under pressure  
400 bar

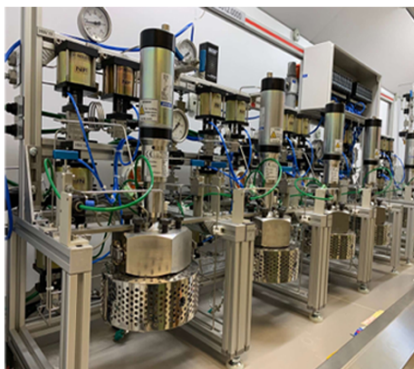
Internal force  
measurement  
and extensimetry

### Minerve Power to gas plant - Catalytic Methanation



- First demonstrator  
Power to Gas in France

- 1 m<sup>3</sup>/h of CH<sub>4</sub> produced  
from green H<sub>2</sub> -  
Conversion rate up to 99%.



### Hydrogenation reactors

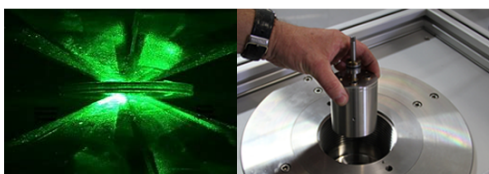
20 - 200 bar  
200 - 250°C



### H<sub>2</sub> compressor unit

Pneumatic or electric

Operating pressure : up to 3000 bar



### Gas Loader

H<sub>2</sub> at about 3000 bar

## THEY TRUST US

