Mincatec Energy

SUSTAINABLE MOBILITY

LOW PRESSURE HYDROGEN

Light vehicle applications

HYTiC
METAL HYDRIDE TANK INNOVATIVE CAR

MINCATEC Energy, solutions for a new energy world

www.mincatec.com / www.mincatec-energy.com

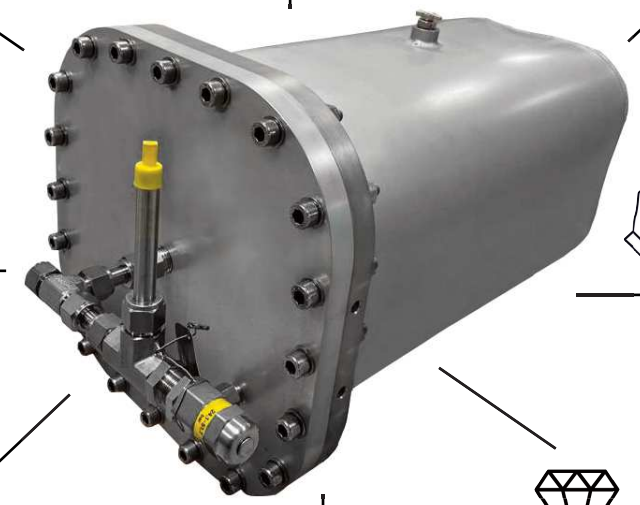
SOLID HYDROGEN STORAGE

Your turnkey solution for mobile and stationary applications

Reduced H2 leakage: H2 is expansive and an indirect GHG

Safety: low pressure gas storage, 10 bar at 20°C

Unrivalled **life time**: no capacity loss



Compact & modular design: can be packed and containerised

Simple usage: no compression, reduced operational costs

Cold generation during H2 release: can be used by adjacent fuel cells

No rare earth: just industrial metals

Produced in **France**

STANDARD 1 KG HYDROGEN TANK

CHARACTERISTICS:	DATA:
H2 storage capacity	1 kg
Tank mass	85 kg
Pack volume	32 L
Pack dimensions	L = 496 x 260 x 260 mm
Operating temperature	from -20°C to 80 °C
Storage temperature	from -40 °C to 100 °C
Ab/Sorption	< 4 kWh/kg_H2
Equilibrium pressure	10 bar at 20°C
Loading pressure	maxi 50 bar
Loading time with cooling	< 10 min
Tank material	aluminium alloy

SOLID HYDROGEN STORAGE

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HYT MOBILITY
METAL HYDRIDE TANK

Mobile applications	Why?
Public works machinery	Need for counterweight
Airport Vehicles	Volume constraint
Handling equipment	Ease and speed of recharging: low pressure ecosystem - local production
Agricultural & viticultural machinery	Cogeneration: thermal coupling tanks/fuel cell
Boats (maritime, river): propulsion & life on board	
Light passenger vehicles	Constrained volume
Road machinery	Battery replacement: volume and weight gain, reduced recharging time
Last mile delivery trucks	

HYT STATIONNARY
METAL HYDRIDE TANK

HYT INDUSTRIAL
METAL HYDRIDE TANK

Stationary applications	Why?
Storage of renewable energies: solar, wind, tidal,...	No weight constraint
House, isolated site	High level of safety: low pressure
Public buildings, eco-district, sustainable city	No compression: silent and efficient solution, Capex/Opex efficiency
Industry - process	Lifetime
	Long-term storage - off-season: no hydrogen leak
Generators & data center	Generation of cold
	Pollution-free solution
	in a closed environment

MINCATEC Energy tanks can be integrated into all types of vehicles for carbon-free mobility:

HYT MOBILITY
METAL HYDRIDE TANK

MHYTIC PROJECT

Realization of a hydrogen demonstrator in partnership with the UTBM co-financed by the BPI - BFC Region. Integration of a 1 kg tank of solid hydrogen and the energy control & management system of MINCATEC Energy in an urban vehicle.
- range: **180 km**
- charging time: **< 10 mn**

OUR DEMONSTRATOR VEHICLE

PROJECT: SHYPAGE - Partnership with UTBM

OBJECTIVE:
Demonstrate that solid hydrogen storage meets mobility needs
- Complete retrofit of a vehicle
- Integration of a **1 kg H2 solid low pressure tank**
- New electrical and hydrogen architecture
- New **control system & optimized energy management**
- Vehicle approval

PERFORMANCE:
- Autonomy: **180 km**
- Charging time: **less than 10 mn**
- Cold start: **-7°C**
- Energy source: **hydrogen**

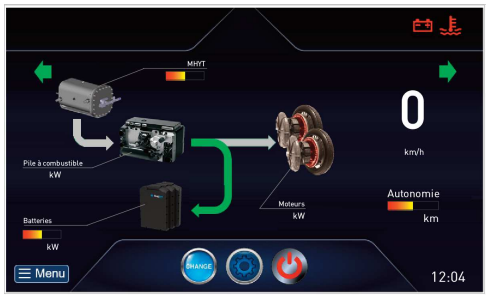
WAY FORWARD:
Deployment on an industrial scale of
our technology to areas other than mobility

RMS tank management system
(SOC status, thermal management, flow management, ...)

MANAGEMENT SOLUTION ENERGY MINCATEC ENERGY

Mincatec Energy has developed its own control and supervision system:

- **Optimization** of the energy inputs of the multi-source system
- Piloting and continuous **monitoring** of the data of each subsystem
- **Customizable** user interface and overall system operation
- Security and maintenance modes



HYTiC
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Mincatec Energy

RÉGION BOURGOGNE FRANCHE COMTE

Pôle Véhicule du Futur
Solutions pour véhicules & mobilités du futur

Club H2 Bourgogne Franche-Comté

Membre de France Hydrogène
Engagée pour la transition écologique

utbm université de technologie Belfort-Montbéliard

femto-st · icb · FCLAB

Club Hydrogène d'Île-de-France

bpifrance

AFBE Association Française pour le Bateau Électrique

ER H2 Bretagne

cnrs

next move

EQA ISO 14001 Empresa certificada Certificat 10846-MA

EQA EN 9100 Empresa certificada Certificat 10846-AE

EQA ISO 9001 Empresa certificada Certificat 10846-CA

To build a zero-emission, recyclable, sustainable, safe and responsible energy future.

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