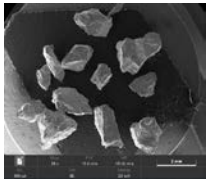


SOLID HYDROGEN STORAGE

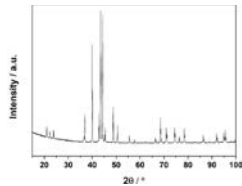
Knowledge

BluEnergy Revolution launched a collaboration with Tecnodelta and University of Torino to in 2020 to develop a metal hydride (MH) hydrogen storage system

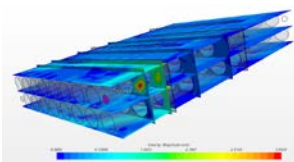
The consortium sum the scientific knowledge of UNITO, coordinator of important research initiatives, with the building capacity and experience of Tecnodelta, special gas and safety systems developer and the hydrogen system integrator competences of BluEnergy Revolution in a unique group



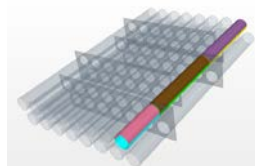
Powder Morphology



Phase's Investigation



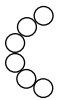
CFD analysis



Thermal analysis

Technology

Patented solutions have been prototyped, studied and developed into a solution that is able to exploit the characteristics of MH hydrogen storage systems



The tank design enable to adapt the system to the available space and forms



The use of full inox materials and the robustness of the tanks make it possible to install the system in harsh environment like salt water

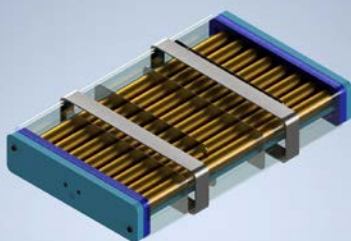
The embedded control system enable to thermally couple the hydrogen storage system with fuel cells and electrolyser increasing the total system efficiency, easing the integration and increasing the safety aspects

Safe and Modular

The Solid Hydrogen Storage system is a hydrogen storage solution that uses the metal hydride technology to store large amount of hydrogen in reduced volumes and safely

The system is able to operate at low pressure and ambient temperature, it can be directly coupled with electrolysers and fuel cells

The consortium assess the optimum MH powder for the product through detailed analysis. The tank design has been designed and tested to maximize the storage performance, lifetime in a modular factor to cover a wide range of applications. The tanks construction is made in Italy in compliance with PED norms and relevant codes

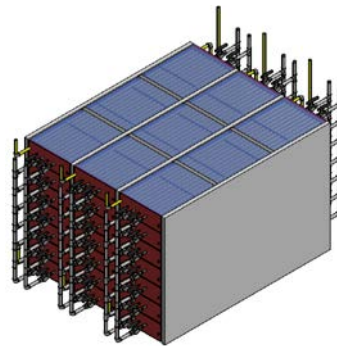
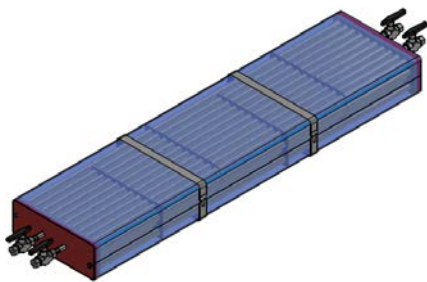




TECHNICAL SPECIFICATION

1 kg MH module			
Storage capacity		kg H2 (rev)	1
Discharge	Nominal flow	kg/h	1
	Nominal pressure	bar(a)	20-30
	Nominal temperature	°C	25
Charge	Nominal flow	kg/h	1
	Nominal pressure	bar(a)	2-10
	Nominal temperature	°C	30-40
Dimensions	L x V x H	mm	1500 x 380 x 140
Weight		kg	140
Operating temperature		°C	-20 to 50
Communication		-	CAN

10 kg MH tower			
Storage capacity		kg H2 (rev)	10
# of modules	1 kg MH modules	-	10
Discharge	Nominal flow	kg/h	10
	Nominal pressure	bar(a)	20-30
	Nominal temperature	°C	25
Charge	Nominal flow	kg/h	10
	Nominal pressure	bar(a)	2-10
	Nominal temperature	°C	30-40
Dimensions	L x V x H	mm	1800 x 420 x 1470
Weight		kg	1540
Operating temperature		°C	-20 to 50
Communication		-	CAN



The modular tank design and the patented solution enable the definition of specific designs in accordance with clients requirements

All products are CE-approved (2014/68/EU) and tested according to the strictest requirements in Italy