Innovative Hydrogen Storage Systems

Benjamin Pessl
Project Manager – Alternative Propulsion Systems
Advanced Development – MAGNA STEYR Engineering Graz

A3PS Eco-Mobility 2014
October 20 – 21, Tech Gate, Vienna, Austria
Global Presence

~ 130,000 People  |  29 Countries  |  317  |  83  |  $34.8 Billion (2013 Sales)

(@ Q2 2014)
Management Structure MAGNA Int.

Don Walker  
Chief Executive Officer

Vince Galifi  
Chief Financial Officer

Jim Tobin  
Chief Marketing Officer, President Magna Asia

Jeff Palmer  
Chief Legal Officer

Tom Skudutis  
COO Magna Interiors, Exteriors, Seating, Mirrors, Closures and Cosma

Swamy Kotagiri  
Chief Technology Officer

Marc Neeb  
Chief Human Resources Officer

Guenther Apfalter  
President Magna Europe

Mike Sinnaeve  
VP Operational Improvement & Quality

Joe Pittel  
President

Albert Lidauer  
President

Frank Seguin  
President

John Farrell  
President

Jake Hirsch  
President

Guenther Apfalter  
President

Mike Bisson  
President

Joel Pittel  
Acting President

MAGNA SEATING  
MAGNA EXTERIORS  
MAGNA INTERIORS  
MAGNA MIRRORS & MAGNA CLOSURES  
MAGNA POWERTRAIN & MAGNA ELECTRONICS  
MAGNA STEYR

Seating  
Exteriors  
Interiors  
Vision, Closures, Lighting, Sealing & Roof Systems  
Body & Chassis  
Vehicle Eng & Contract Mfg; Fuel & Battery Systems
Energy Storage Domains

Liquid

Electrochemical

Gaseous
Ariane 5

... 1996 ... Today

75th Launch – Sept. 11, 2014

Source: ESA
Aston Martin Hydrogen Hybrid

2012 – 2013

Source: Alset
H₂ – Future?
Experience

> 20 years
High pressure & cryo storage
> 2.000.000 km on road
Principle of successful developments

- Raise Functionality
- Reduce Weight
- Decrease Costs
- Reduce Installation Space

As Coarse As Possible
Engineering Highness
Assembly Highness
Quality Highness
As Fine As Necessary
H₂ – Storage System Technology

Demonstrator, 2014 …

Source MAGNA STEYR
Characteristics

- Pressure 70 MPa
- 2 Vessels (57 SL = 19 SL + 38 SL)
- Capacity 2.3 kg H₂
- Scope of application: FC – REX Vehicle
Key Improvements

- Vessel capacity +5%
- Vessel weight -12%
- Specific frame weight -60%
- Tank valve weight -60%
- Tank valve space -88%
- Integrated vent line
- Pressure regulator weight -50%
- Pressure regulator space -80%
- Lightweight design: Extruded aluminum
- GF composite cover

CONTACT
benjamin.pessl@magnasteyr.com
Project Manager Alternative Propulsion Systems
+43 664 8840 6887
axel-oscar.bernt@magnasteyr.com
Program Manager Hydrogen Systems
+43 664 8840 5511