EKPO FUEL CELL TECHNOLOGIES

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The rationale

A common story
Two leading suppliers, stock-listed companies with a family as anchor shareholder, committed to sustainable mobility

A new leader
Creation of a French-German JV with complementary know-how

Ready to market solutions
To unlock the mass market potential with innovation, development and production capacities

Strong ambitions
Harnessing the strong momentum in the hydrogen sector for zero-emission mobility
Creating a world leader in fuel cell technology

ElringKlinger and Plastic Omnium

ElringKlinger Fuelcell Systems Austria (EKAT)
Plastic Omnium – a worldwide leader with a global footprint and a diversified customer portfolio

- Created in 1946 and majority owned by the founding family through Burelle SA (59%)
- 27th worldwide automotive supplier

2019 Revenue
€9.2 bn

131 plants
25 R&D centers

31,000 employees
in 25 countries

4.5% of revenue dedicated to R&D

93 customers
Plastic Omnium – shaping the future of sustainable and connected vehicles

The partners

INTELLIGENT EXTERIOR SYSTEMS

Connectivity & Functions Integration

#1 WORLDWIDE

15% Market shares Bumpers

NEW ENERGIES

Hydrogen / Fuel-cell

CLEAN ENERGY SYSTEMS

Energy Transition

#1 WORLDWIDE

22% Market shares Fuel systems

MODULARIZATION & CUSTOMIZATION

#1 WORLDWIDE

18% Market shares Front end modules

CLEAN ENERGY SYSTEMS

INTELLIGENT EXTERIOR SYSTEMS

NEW ENERGIES
Plastic Omnium – already strongly positioned on hydrogen

Plastic Omnium ambition: to be leader on the GLOBAL HYDROGEN VALUE CHAIN

Strategy deployed since 2015:

- €200m already invested
- 130 engineers
- 2 acquisitions in 2017: hydrogen vessels, fuel cell system
- Technological & commercial successes
ElringKlinger – driving future mobility

Headquartered in Dettingen/Erms, close to Stuttgart

45 locations worldwide

EUR 1.7 billion in sales

3.7% EBIT margin pre PPA

Family as a strong anchor shareholder

4.5% of total sales spent for R&D

Around 10,000 employees globally

Founded in 1879

All figures refer to FY 2019
The partners

ElringKlinger – a proactive player in the transformation process

- Providing sophisticated components, modules and systems in new technologies like battery, fuel cell or electric drive unit – e.g. cell-contacting system
- Unlocking strong market potential through innovative solutions for new technologies developed by classical business units – e.g. disc carrier
- Benefitting from strong market position in classical areas – e.g. gaskets
ElringKlinger – broad in-house expertise enables high-tech products

The partners

Fuel cell stacks & systems
- Over the past 20 years

Fuel cell components
- Bipolar plates
- Gaskets (Seal on GDL/Seal on BPP)
- Endplates / Media Modules

Industrialization / Production Processes
- Stamping / embossing
- Coating
- Stacking
- Tooling
- Joining
- Injection molding

Specialty gaskets
- Plastic housing modules
- High-performance elastomers
- Cylinder-head gaskets
A strong momentum for hydrogen technology

- **Environmental**
  - Significant reduction of CO₂ targets for transportation sector
  - Shift to renewables in energy sector

- **Social**
  - Increased social awareness for climate change
  - High expectation of end customers for greener cars

- **Political**
  - Strong push in many regions (e.g. Europe, Asia) supported by high investment programs

- **Economic**
  - Exponential growth to be expected
  - Fast growing ecosystem with increasing number of players

- **Technological**
  - Needs to decrease costs for mass market penetration
  - Readiness for high performance in serial applications
How does it work?

1. **AIR (OXYGEN – \( \text{O}_2 \))**
   Air flows through front intake grills and is supplied to the fuel cell stack.

2. **HIGH PRESSURE \( \text{H}_2 \) STORAGE**
   Hydrogen stored in the vessels is supplied to the fuel cell stack.

3. **FUEL CELL STACK**
   Hydrogen (H2) and Oxygen (O2) react inside the fuel cell stack generating electricity and water through an electrochemical reaction.

4. **ELECTRICITY STORAGE**
   Electricity store in the battery.

5. **DRIVING**
   Motor is powered and vehicle accelerates.

6. **ZERO EMISSION**
   Pure water emitted outside vehicle.

**Technology**
Offering high value added in fuel cell technologies

Development and production of fuel cell stacks and components

- Components
- Assembly
- Modules (Stacking)
- Integration
- Systems

Assets, know-how and expertise

60%  |  EKPO FUEL CELL TECHNOLOGIES | 40%
## Rationale of the deal for ElringKlinger

### Strategic approach in E-Mobility

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<tr>
<th>Components</th>
<th>Modules</th>
<th>Systems</th>
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1. Bringing existing fuel cell technology to **large-scale production** in order to realize economies of scale.
2. Maintaining a **close regular supply relationship** to a fuel cell systems partner while **offering solutions to all existing and potential customers**.
3. Accelerating the **development of the next generation** of fuel cell technology.
Ready for large-scale production

Headquartered in Dettingen/Erms, close to Stuttgart (Germany)

More than 150 employees

Addressing global fuel cell business

Initial production capacity of up to 10,000 units per year

More than 150 patents
Rationale of the deal for Plastic Omnium

Add a new business line to Plastic Omnium offer with best-in-class technology and available production capacity

€100m for 40%

€15m for 100%

Complement Plastic Omnium know-how on global hydrogen system optimization

Accelerate innovation • Develop new commercial pipeline • Increase production capacities
Plastic Omnium now present on the full hydrogen value chain

Hydrogen Storage Systems
High pressure vessels
200, 350 & 700 bar

Fuel Cell Stacks

Integrated Hydrogen Systems

Large potential in mobility markets

Estimated market potential 2030: at least 2 to 3 million fuel cell vehicles

- Commercial vehicles will develop first
- Passenger cars will represent the most important share of the market in 2030
- Asia will dominate the market followed by Europe

Market potential 2030 by segment:
- Passenger vehicles: ~80%
- Commercial vehicles (LCV, trucks, buses): ~20%

Market potential 2030 by region:
- Asia: ~70%
- Europe: ~20%
- North America: ~10%
By 2030, EKPO Fuel Cell Technologies aims to:

• ...reach a **market share of 10 to 15%**, representing revenues between € 700mn and € 1 bn

• ...foster mass market adoption by **dividing by 5 the price per kW** which would be competitive to internal combustion engines

• ...develop a **global industrial footprint** which already today complies with automotive standards
A new leading joint venture

A differentiating offer to contribute to clean mobility

- Best-in-class technology with high power density
- Fully automated production lines complying with automotive standards
- Worldwide commercial pipeline
- Leveraging competitiveness
- Strong financial outlook
- Innovation driven with highly skilled teams
Lifting fuel cell technology together to the next level.