

- **Hydrogenics is the worldwide leader in designing, manufacturing, building and installing Hydrogen generation, Hydrogen fuel cells and MW-scale energy storage solutions**
 - Hydrogen generators for Industrial processes and Fueling stations
 - Hydrogen fuel cells for electric vehicles, such as trains, urban transit buses and utility vehicles as well as stationary power plants
 - “Power-to-Gas” the world’s most innovative way to store and transport energy
- **Our vision for Advanced Manufacturing in our facility:**
 1. *Automated fuel cell and electrolyser assembly for heavy duty vehicle applications*
 2. *Advanced materials for fuel cell and electrolyser systems*
 3. *SMART factory for fuel cell and electrolyser manufacturing*



- 145 + patents, 2,000+ fuel cell and 500 electrolyzer installations around the world
- 70 years of experience in delivering top-tier hydrogen solutions
- Headquartered in Mississauga, with manufacturing sites in Germany, Belgium and Canada and sales and service centers in Russia, Europe, Pacific Asia, the US and Canada
- Serving customers in 100+ countries around the world

Our Collaborative Advanced Manufacturing Project Idea:

1. **High-volume Fuel Cell Component Manufacturing:**
 - Development of a proprietary plate and MEA materials, coatings, adhesives and seals
 - Development of processes to manufacture these components including forming, molding, high volume roll to roll coating, lamination and rotary die cut converting
2. **Throughput Increase of Manufacturing Process:**
 - Proceeding from single to multi-cavity tooling to increase throughput
 - Developing tooling for casting, compression and injection molding of parts
3. **Develop and Implement SMART Factory:**
 - Advanced, 4.0 compliant, manufacturing machine development and acquisition, next generation testing equipment, linked-up SMART Factory
4. **Automation of Existing Manufacturing Lines:**
 - Multiple robots deployed on the manufacturing line
 - Automation of stack building process
 - Automation of stack compression
 - Quality-checking and leak-checking processes
5. **Diagnostics:**
 - Develop techniques and acquire advanced equipment (i.e. Scanning Electron Microscopy – SEM) to enable rapid in-house characterization of components and materials; also to improve in-house QC inspection capabilities

Seeking Partnerships for:

1. **Materials Development**

- Highly Conductive polymers, metal films and coatings
- Membranes, catalysts, adhesives and thin film coatings for our products

2. **Automation and tooling for our factory**

- Robotic inspection and assembly of FC and EL components
- Roll to roll coating, die cutting, lamination
- Compression, injection, stamping, die cutting, embossing, trimming, printing and forming tooling and processing equipment
- Automated assembly of components into our final products

3. **SMART Factory implementation to upgrade, expand and improve the efficiency of our operations**

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