

I-Scan[®] System

Fuel Cell Application

Measurement Types:

- Identify
 - Peak pressure
 - Localized pressure
 - Spatial pressure
- R&D for new fuel cells
- Design validation testing

Benefits:

- Improve assembly technique
- Improve clamping fixtures
- Determine which materials are best for uniform contact distribution

Industries:

- Fuel cell manufacturer
- Regulatory agency
- University
- Automotive

BACKGROUND

In a fuel cell, numerous thin plates are stacked in close proximity to separate the flows of hydrogen or hydrocarbons and oxygen. In addition to proper stacking pressure, applied clamping torque may also affect contact distribution within a fuel cell.

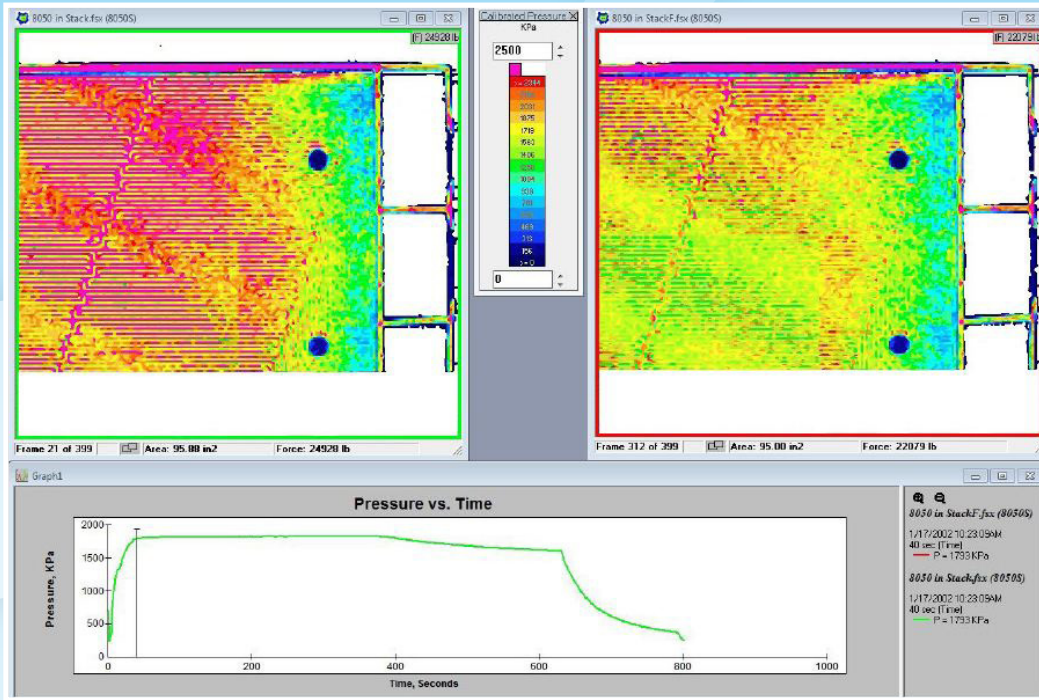
CHALLENGE

Maintaining and improving the uniformity of the contact pressure between these plates over a large area is an important factor in the design and performance of fuel cells. Eliminating parasitic leakage paths is essential to obtaining efficient operation.

SOLUTION

The I-Scan[®] pressure mapping system offers fuel cell manufacturers tremendous insight into the behavior of components and assembly alternatives. The data that the system provides allows for direct comparison of the pressure patterns from different designs thus saving time in design verification and re-engineering costs.

Sensors are available in different shapes and pressure ranges, are reusable, and provide accurate pressure data. With the help of our highly qualified sales and engineering support team, each system can be configured to meet your specific needs.



Pressure around ports and in flow field before and after pressurization.

Typical Sensors Used in this Application

Model #	Sensing Region	Sensel Density sensels per square centimeter (sensels per square inch)
5027	27.9 mm x 27.9 mm (1.1 in. x 1.1 in.)	248.0 (1,600.0)
5076	83.8 mm x 83.8 mm (3.3 in. x 3.3 in.)	27.6 (177.8)
5101	111.8 mm x 111.8 mm (4.4 in. x 4.4 in.)	15.5 (100.0)
5250	245.9 mm x 245.9 mm (9.68 in. x 9.68 in.)	3.2 (20.7)
5260	482.1 mm x 206.8 mm (18.98 in. x 8.14 in.)	2.3 (14.8)
7501	100.1 mm x 88.1 mm (3.94 in. x 3.47 in.)	99.9 (644.2)
8050	292.6 mm x 268.2 mm (11.52 in. x 10.56 in.)	43.1 (277.8)

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