## **EUROPE SPECIAL** ENERGY BUSINESS REVIEW HYDROGEN

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## **GITIS** Developing High-Quality Solutions for the H2 Market

ydrogen will play a prominent role in decarbonising the global economy and helping the world reach net zero emissions. As innovations introduce new technologies to harness the power of hydrogen, the focus is now on ensuring the safety, reliability, and efficiency of these systems to facilitate a sustainable energy transition.

GITIS is among the key solution providers bolstering hydrogen technology with high-quality sealing systems such as O-rings, rubber moulded parts, and multi-component products. These offerings play a crucial role in preventing leaks and maintaining the integrity of hydrogenrelated systems.

Over 40 years of experience in the design, manufacture, and distribution of sealing systems bolster GITIS's ability to tailor specific materials for the hydrogen market. The family-owned

company is known for its flexibility, agility, and efficient decision-making, which allow it to deliver customised solutions for individual hydrogen projects. Even when clients from the automotive, oil and gas, chemical, food, and pharmaceutical industries need comprehensive engineering solutions for large-scale projects, they trust GITIS to help them reach their development goals.

"Whether it is Tier 1 and Tier 2 automotive customers, engineering companies, or industrial clients seeking to upscale new products in the hydrogen supply chain, we ensure their projects can last a lifetime by supplying the best sealing systems," says Aaron Eichkorn, product manager at GITIS.

The company solves two primary pain points in the market-prototype availability and development time. In an industry where the relatively lower quantity of relevant data makes FEA/FEM testing less reliable, GITIS helps its clients access prototypes for testing and data collection. The prototypes with serial materials are made available to clients within four weeks through a dedicated prototype workshop. Matching different material parameters is also made possible. Whether it is high-pressure applications requiring low-leakage values or products with multiple specifications, GITIS puts in the additional effort needed to meet all client requirements.

The H2G – GITIS Hydrogen Series seals find use cases in many modern H2 applications, whether for electrolysers, compressors, valves, connectors, pumps, or FCEVs. Materials for sealing rings and backup rings are also available depending on application and pressure requirements. The materials are injection-mouldable and facilitate direct moulding onto the stack plates in a multi-component process.

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Aaron Eichkorn, Product Manager



These ED-compliant components meet the most demanding application parameters, including permeation, anti-explosive decompression behaviour, leaching values, and material integrity. The spring-energised seals offered by GITIS for high-pressure applications can easily resist hydrogen embrittlement and withstand dynamic conditions.

> Material quality is GITIS's brand promise. The development team understands the processing parameters for elastomers and ensures pressure stability is achieved. Each sealing ring undergoes optical inspection, scanning, and sorting. Very tight tolerance provides effective sealing at pressures exceeding 1000 bar. These stringent quality standards reflect the company's commitment to safety and reliability.

GITIS works closely with application engineers to identify sealing issues at the design stage. Along with advising clients on issues like excessive wear/low seal life, it engages in their design process and offers them the right components at the appropriate stages of development. They can implement long-lasting sealing solutions for their H2 applications.

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These robust sealing solutions by GITIS have empowered many clients to reach their project goals. A valve manufacturer sought its help in making a seal on the switching shaft of an H2 valve, which failed too quickly and lasted only up to 3,000 shifting cycles. After engaging with GITIS, they introduced a PFAS-free H2 sealing system that lasts up to 100,000 shifting cycles at a maximum differential pressure of 1050 bars.

Using PFAS-free materials aligns with the upcoming PFAS ban in the EU, making GITIS's solution even more relevant for the H2 market.

This is but one of the many success stories GITIS has penned over the years. By combing quick development and high-quality sealing solutions, the company will play a crucial role in making hydrogen energy a sustainable transition from non-renewable sources. EB

