Keeping Doosan Fuel Cell Running 24/7 with Emerson's Hydrogen-Ready Pressure Regulation Solutions

RESULTS

- Enabled 24/7 operation of a 100% hydrogen fuel cell power plant
- Accelerated future growth by delivering reliable, scalable, and sustainable hydrogen infrastructure solutions

APPLICATION

Hydrogen Fuel Cell Power Generation.

CUSTOMER

Lotte/SK Eneroot is a strategic joint venture established to spearhead South Korea's transition to a hydrogen-based economy.

Samchully ES serves as the specialized EPC arm of the Samchully Group, Korea's largest city gas provider, bringing deep execution capability across gas and hydrogen infrastructure. Samchully ES choose Doosan Fuel Cell, which is a South Korean clean energy technology company that supplies hydrogen fuel cell systems for distributed power generation, helping businesses and utilities produce reliable, low-carbon electricity.

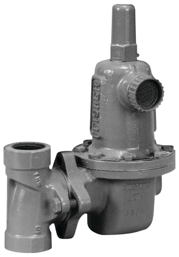
CHALLENGE

Samchully ES required a pressure regulation solution that could support the reliable operation of the 100% hydrogen fuel cell power generation projects. With fuel cells designed for continuous operation, maintaining stable gas pressure and flow is critical to ensuring maximum efficiency, protecting equipment, and preventing unplanned downtime.

As the company expanded its hydrogen project pipeline, it also sought to standardize critical pressure regulation components across multiple platforms to simplify engineering, maintenance, and long-term operations. To achieve this, Samchully ES needed a trusted technology partner with proven hydrogen expertise, field-proven products, and the capability to support the plant throughout its lifecycle.

> ***"For a fuel cell power plant, reliability is everything. Emerson's proven pressure regulation technology and local engineering support have helped us maintain safe, stable fuel delivery and confidence in continuous operations."***
>
> **Cho Sung Jin**
> Principal Engineer, Doosan Fuel Cell

Fisher™ Type 1098H-EGR Pressure Reducing Regulator



Fisher 627 Series Pressure Reducing Regulator

For more information:
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CHALLENGE

Beyond technical performance, supply assurance was equally important. Industry-wide constraints for hydrogen-compatible components created concerns around project schedules and future expansion plans. Samchully ES required a partner that could provide reliable product availability, global engineering support, and a proven track record in helping ensure safe, uninterrupted operation of hydrogen energy infrastructure. As the hydrogen fuel cell market accelerated, Doosan Fuel Cell required a regulator solution capable of supporting a rapidly expanding project pipeline while aligning with its equipment standardization strategy. Samchully ES sought field-proven regulators offering high reliability, consistent performance, and strong global technical support to ensure the long-term stability of hydrogen fuel cell systems.

A key requirement was the standardization of critical components across multiple platforms, driving the need for a trusted partner with proven hydrogen expertise. In addition, industry-wide supply constraints for hydrogen-specific components made supply assurance a critical success factor. Emerson addressed these challenges by delivering proven regulator and valve solutions with dependable availability, short lead times, and strong technical support. This combination of product reliability, supply chain resilience, and execution excellence enabled the successful and on-time commissioning of the 100% hydrogen fuel cell station, while strengthening the customer's confidence in Emerson as a strategic partner for future hydrogen projects.

SOLUTION

Emerson delivered a hydrogen-ready solution built around the trusted Fisher™ regulator platform, widely recognized in South Korea for its proven performance in industrial gas applications. The Fisher 627 Series Pressure Reducing Regulator provides accurate and reliable pressure control, helping ensure the safe and efficient operation of the 100% hydrogen fuel cell system.

To support long-term reliability, Emerson engineered a dedicated hydrogen governor station designed for hydrogen service, with careful consideration of material compatibility, sealing integrity, ventilation, and hazardous-area requirements. Specialized metals and elastomers were selected to mitigate hydrogen embrittlement and permeation, helping ensure safe, stable, and continuous plant operation. Working in close collaboration with Emerson's Local Business Partner, KFNGS, regulators and end-to-end assemblies were manufactured locally, enabling rapid deployment and strong project readiness. This proactive model—combining pre-secured inventory with local assembly—allowed the project to meet aggressive timelines while maintaining Emerson's global quality and compliance standards. In parallel, Emerson worked in lockstep with the EPC, Samchully ES, providing specialized field expertise that bridged the gap between theoretical hydrogen system design and real world operational requirements. This support was critical given the limited regional experience in tuning and commissioning hydrogen dedicated governor stations.

This landmark project represents the deployment of a 100% hydrogen fueled power plant in Korea. Moving beyond conventional natural gas or hydrogen blend systems, the facility leverages Doosan fuel cells to generate clean, zero carbon power. Emerson was selected to supply a specialized Governor Station capable of handling pure hydrogen, a capability that demands rigorous engineering discipline, proven products, and a resilient supply chain. Looking ahead, the same engineering approach and hydrogen-ready technologies can be applied to emerging applications such as data centers, where fuel cells are increasingly being adopted to deliver resilient, zero-carbon power for critical operations. This success lays the foundation for expanding Emerson's role in the rapidly growing hydrogen economy and the future of sustainable digital infrastructure.

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