Globe Selects Ansys to Reduce Development Costs for Fuel Cell Systems and Accelerate Industrial Decarbonization

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Ansys simulation enables Globe to develop carbon neutral, intelligent, modular energy systems based on its innovative fuel cell technology

/ Key Highlights

- With support from Ansys channel partner CADFEM, Ansys simulation enabled Globe's XLP80, a complete hybrid fuel cell system combined with lithium-ion battery power, to deliver high-energy output in support of a pro-hydrogen economy
- A triple-stage simulation approach helped Globe save three test stands during closed-loop analysis, reducing development costs by more than $150,000

PITTSBURGH, April 5, 2023 /PRNewswire/ -- Fuel cell technology company Globe Fuel Cell Systems uses Ansys (NASDAQ: ANSS) simulation software to enable cost savings in the development of its individual hydrogen fuel cells and fuel cell systems for carbon-neutral objectives for intralogistics. Specifically, these objectives involve the optimization and automation of information within industrial spaces, including distribution centers, warehouses, and hospitals in support of Globe customers on their path to decarbonization.

Temperature regulation is a key function of hydrogen-based fuel cell systems, as any missteps in system optimization can negatively impact energy conversion. Airflow is an important aspect of successful regulation that facilitates system cooling to manage any unexpected temperature fluctuations. For Globe, precision in these areas requires an understanding of mass flows, temperature drops, and flow distribution in one efficient loop involving a lot of time and physical testing.

Globe is using Ansys simulation during computational fluid dynamics (CFD) analysis to speed the validation of cooling loop performance and reduce the number of system iterations needed to verify temperature requirements. Simulating the cooling loop within the context of the entire fuel cell system also helps Globe engineers better understand the needed air flow, as well as identify any physical adaptations needed to optimize system performance. Using this approach, Globe reduced development costs by more than $150,000. Today, simulation is a key component of Globe's approval process for fast, predictively accurate results on the path to system certification — activity that will significantly accelerate system scaling possibilities in the future.

"The transportation industry plays an outsized role in global decarbonization, where speed and reliability are critical," said Dr. Bernhard Wienk-Borgert, co-founder and chief technology officer at Globe Fuel Cell Systems. "Globe's R&D team relies on Ansys simulation combined with advice from CADFEM to accelerate the development of our novel solutions with the confidence that they will perform safely in the real world, while meeting customer objectives for carbon neutrality."

"Achieving carbon neutrality is a tremendous effort dependent upon novel solutions like hydrogen fuel cell technology to address our current climate crisis," said Prith Banerjee, chief technology officer at Ansys. "Simulation presents immediate scaling opportunities for fuel cell technology that can drive down development times and fuel cell stack costs, and quickly open up numerous possibilities in markets that were once aspirational for our customers."

/ About Ansys

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality with Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push boundaries by using the predictive power of simulation. From sustainable transportation to advanced semiconductors, from satellite systems to life-saving medical devices, the next great leaps in human advancement will be powered by Ansys.

Take a leap of certainty … with Ansys.

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