

PRESS RELEASE

Garrett's Next-Generation Electric Compressor Technology Debuts in Hydrogen Fuel Cell Vehicle

German automaker pilots advanced technology in hydrogen fuel cell series

ROLLE, Switzerland, June 13, 2023 – Garrett Motion Inc. (Nasdaq: GTX), a differentiated technology leader for the automotive industry, is supporting BMW Group's commitment to developing zero-emission hydrogen fuel cell vehicles with an advanced electric fuel cell compressor (FCC) developed by Garrett's R&D team. BMW Group recently announced that it will pilot the second generation of its hydrogen fuel cell drive train in a small series of the BMW iX5 Hydrogen, boosted by Garrett's new generation, modular fuel cell compressor for hydrogen fuel cell electric vehicles.

"For the last four years, we have been working closely with BMW Group to develop an advanced hydrogen fuel cell compressor tailored to their exact needs. This effort will culminate in an in-depth, on-road trial later this year," said Craig Balis, Garrett vice president and chief technology officer. *"We are proud to partner with BMW Group to support the innovative and zero emissions iX5 Hydrogen fuel cell vehicle,"* said Balis. He added, *"This is the result of Garrett's continued investments in new technologies and is consistent with our commitment to being at the forefront of hydrogen-powered propulsion systems."*



Caption: BMW iX5 Hydrogen fuel cell vehicle, with Garrett Motion's advanced fuel cell compressor. (Photo credit BMW Group®)

Garrett's electric air compressor for fuel cell electric vehicles is a key technology in the BMW iX5 Hydrogen's fuel cell system. Fuel cells generate on-demand electricity for electric motors via an electro-chemical reaction between hydrogen and oxygen in the air supplied to the fuel cell stack. To perform this reaction efficiently, and to produce maximum power output, the fuel cell stack is fed with optimal air flow and pressure, as required. Garrett's high-performance electric air compressor delivers efficiently the airflow needed to optimize the fuel cell system's power density and output. It also maximizes the efficiency and durability of the fuel cell stack over the vehicle's lifetime, in a very compact package. Specifically for this application, a new turbine expander, designed to recuperate waste energy from the fuel cell stack's outlet, enables up to a 20 percent reduction in electricity consumption for air compression, when compared to conventional fuel cell compressors.

“Garrett is a pioneer in hydrogen electric fuel cell compressor technology with years of demonstrated expertise in production and on-road experience. The next generation builds upon a legacy of breakthrough design and engineering, including our own high-speed electric motor, power electronics and advanced controls,” said Balis.

During the development phase, the BMW iX5 Hydrogen and its key components, including the fuel cell electric compressor and its inverter, were tested against harsh temperatures, humidity, and vibration levels. These efforts reflect BMW Group’s commitment to delivering clean mobility via a range of carbon-neutral drive systems that can reliably perform in all climates.

Garrett’s modular, high-performance electric fuel cell compressors lean on the company’s turbo aerodynamics expertise and operate above standard industry speeds, beyond 150,000 rpm.

Garrett’s electric fuel cell compressor portfolio is configurable to fit the hydrogen powered electric powertrains of both passenger and commercial vehicles, as well as those of industrial applications. The company’s 400-volt and 800-volt electric fuel cell compressors feature advanced, patented oil-less foil bearings which enable exceptional, efficiency and noise performance, through the avoidance of contamination.

Garrett Motion is an industry pioneer in hydrogen electric fuel cell compressors, with the first generation developed in-house and launched in a passenger vehicle in 2016.

To learn more about Garrett’s hydrogen fuel cell compressor technology, [click here](#).

About Hydrogen Fuel Cell Electric Vehicles (FCEVs)

FCEVs have zero tailpipe emissions and leverage a fully electrified powertrain where energy is stored as hydrogen in a high-pressure tank, opposed to a battery. The hydrogen fuel cell stacks create electrical energy through an electro-chemical reaction between hydrogen and oxygen, providing on-demand power to the electric drive motors. The reaction creates electricity with the only “exhaust” being small amounts of heat and clean water.

Also, as FCEVs do not require heavy, mineral-rich batteries that are prone to price inflation, and refueling times are like that of diesel or gasoline powertrains – minutes, not hours as found with battery-electric vehicles (BEVs). These aspects of hydrogen-powered vehicles are particularly beneficial for heavier vehicles like SUVs, light trucks, commercial vehicles, and off-road applications.

Global policy changes, advancements in fuel cell technology and more stringent emissions regulations have contributed to the fast-growing interest in hydrogen-powered electric vehicles. According to the Hydrogen Council, more than \$500 billion in new hydrogen projects has been funded in the last two years alone.

About Garrett Motion Inc.

Garrett Motion is a differentiated technology leader serving automotive customers worldwide for more than 65 years. The company’s advanced technologies help reduce emissions, reach zero emissions, and provide vehicle intelligence. Known for its global leadership in turbocharging and engineering breakthroughs, the company is developing transformative technologies for vehicles to become cleaner, more efficient and connected. Its portfolio includes the 1st ever e-turbo, highly-efficient fuel cell e-compressors, as well as propulsion and thermal management systems for battery electric vehicles – among other products for passenger and commercial vehicles, on and off-highway. Garrett boasts five R&D centers, 13 manufacturing sites and 9300 employees located in 180 countries. Its mission is to empower the transportation industry to redefine and further advance motion. For more information, please visit www.garrettmotion.com.