

Press release

## **Liebherr and GM to develop HYDROTEC fuel cell-based electrical power generation system for aerospace application**

**General Motors and Liebherr-Aerospace have agreed to collaborate on development of a HYDROTEC hydrogen fuel cell technology-based electrical power generation system for aircraft applications. The two companies will explore possibilities to leverage Liebherr's strong position as a leading on-board aircraft system supplier, together with GM's leadership in hydrogen fuel cell technology, to develop an integrated system, customized to the performance and economic requirements of commercial aircraft.**

Toulouse (France), June 17, 2021 – Liebherr-Aerospace and GM have recently signed a joint development agreement covering the development of an electrical power generation system to demonstrate how hydrogen fuel cell-based power systems could be used in aircraft application. This demonstrator will be based on GM's HYDROTEC hydrogen fuel cell technology. The construction and testing of this demonstrator will take place in a specialized laboratory multi-system integration testing at Liebherr-Aerospace in Toulouse (France). The demonstrator will incorporate GM's precisely crafted fuel cells, HYDROTEC power cube and fuel cell system, along with the GM's controls and models.

GM, a leader in fuel cell technology, and Liebherr, with extensive expertise in technology integration in aircraft, are pooling their skills for this project. Lower emissions and lower noise than conventional aircraft operation: with these fuel cell advantages, among other things, both companies see a great opportunity for use in aviation. GM, through its relationship with Honda, is one of the world's most advanced fuel cell developers in many industrial fields, now entering into aeronautics.

GM's fuel cell business benefits from decades of investment in engineering and manufacturing expertise with high volume processes that can bring economies of scale to fuel cell production.

"Aircraft are a great litmus test for the strength and versatility of our HYDROTEC fuel cells," said GM Executive Director – Global HYDROTEC Charlie Freese. "Our technology can address customer needs in a wide range of uses - on land, sea, air or rail, and this collaboration with Liebherr could open up new possibilities for aircraft, transitioning to alternative energy power sources."

Liebherr is one of the world's leading suppliers of integrated on-board aircraft systems. Liebherr's integrated aircraft system concept benefits from decades of investment in on-board thermal management and on-board power management.

“The change from the conventional to a hydrogen technology-based electrical power generation system means major systems modifications on board the aircraft that could result in better, more efficient performance of the plane. This we want to prove and test thoroughly. The advantage of GM’s HYDROTEC fuel cell technology is that it has shown promise in extensive automotive and military programs, where it has shown to be reliable from the engineering and manufacturing perspectives. We are developing low emissions aerospace solutions,” explains Francis Carla, Managing Director and Chief Technology Officer, Liebherr-Aerospace & Transportation SAS.

## About Liebherr-Aerospace & Transportation

Liebherr-Aerospace & Transportation SAS, Toulouse (France), is one of eleven divisional control companies within the Liebherr Group and coordinates all activities in the aerospace and transportation systems sectors.

Liebherr-Aerospace is a leading supplier of systems for the aviation industry and has more than six decades of experience in this field. The range of aviation equipment produced by Liebherr for the civil and military sectors includes flight control and actuation systems, gears and gearboxes, landing gear and air management systems as well as electronics. These systems are deployed in wide-bodied aircraft, single aisle and regional aircraft, business jets, combat aircraft, military transporters, military training aircraft, civil helicopters and combat helicopters.

Liebherr’s aerospace and transportation systems division employs around 6,000 people. It has four aviation equipment production plants at Lindenberg (Germany), Toulouse (France), Guaratinguetá (Brazil) and Nizhny Novgorod (Russia). These production sites offer a worldwide service with additional customer service centers in Saline (Michigan/USA), Seattle (Washington/USA), Montreal (Canada), Hamburg (Germany), Moscow (Russia), Dubai (UAE), Bangalore (India), Singapore and Shanghai (People’s Republic of China).

## About the Liebherr Group

The Liebherr Group is a family-run technology company with a highly diversified product portfolio. The company is one of the largest construction equipment manufacturers in the world. It also provides high-quality and user-oriented products and services in a wide range of other areas. The Liebherr Group includes over 140 companies across all continents. In 2020, it employed around 48,000 staff and achieved combined revenues of over 10.3 billion euros. Liebherr was founded in Kirchdorf an der Iller in Southern Germany in 1949. Since then, the employees have been pursuing the goal of achieving continuous technological innovation, and bringing industry-leading solutions to its customers.

## Images



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General Motors and Liebherr-Aerospace will join forces to develop a hydrogen fuel cell-based demonstrator system for aircraft. The collaboration is based on GM’s HYDROTEC technology, like this hydrogen fuel cell stack. - © GM

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