

Press release

## Liebherr and ZF jointly develop high speed compressors

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**Liebherr has entered a strategic as well as historic collaboration with ZF to develop new high speed compressors for medium size, heavy duty as well as long haul hydrogen fuel cell powered vehicles. Customers will benefit from the huge know-how of the two system designers with ZF being one of the major players in the automotive and with Liebherr being one of the leading Original Equipment Manufacturers in the aerospace branch.**

Toulouse (France) – Friedrichshafen (Germany), April 2023 – Liebherr and ZF announce that they join forces to develop and produce new high speed compressors in different power classes for the application in various sized vehicles powered with fuel cell technology. ZF is planning to offer the compressor platform concept to the automotive market.

The two partners will jointly develop the design of the compact and reliable compressors with dedicated power electronics; ZF will take care of the necessary steps for industrialization and series production.

Liebherr's technology is eco-friendly: Its high speed compressors are driven by an electrical motor and feature air bearings, which means that they do not require any lubrication. Thus, the compressors do supply clean, compressed air to the fuel cell stack, not adding any pollution to the membrane. Such technology is an enabler for the deployment of fuel cell propulsion systems with only emissions of water and heat, which aids in the movement for more environmentally friendly transportation.

“Liebherr-Aerospace can look back at more than 40 years of experience in the development and production of air cycle air conditioning systems, where the air cycle machine, that is the compressor, constitutes the core of the system without any use of refrigerants. These systems based on air bearing technology are on board many commercial aircraft and business jet platforms around the globe and perform also very successfully in the railway market. Since the early 2000's, such compressor technology was transferred to the automotive market for application in fuel cell propulsion systems. In this regard we have been working with major car-makers worldwide. With ZF, we have now the right collaboration partner. They will receive our high speed compressor know-how as an enabler to offer critical equipment for fuel cell propulsion systems in the automotive market”, said Dr. Klaus Schneider, Chief Technology Officer, Liebherr-Aerospace & Transportation SAS. “Liebherr will of course continue to develop and offer high speed compressors to the aerospace and railway sector”, he explained.

"Thanks to the new partnership with Liebherr and the integration of its know-how and expertise into our solutions, ZF can significantly shorten the time to market for fuel cell compressors for commercial vehicles," adds Claus Umnus, Head of the Chassis Technology Product Line in ZF's Commercial Vehicle Solutions Division.

## About ZF

ZF is a global technology company supplying systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains of Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive product and software solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies a wide range of vehicle types. With its products, the company contributes to reducing emissions, protecting the climate and enhancing safe mobility. With some 165,000 employees worldwide, ZF reported sales of €43.8 billion in fiscal 2022. The company operates 168 production locations in 32 countries. For further press information and photos, please visit: [www.zf.com](http://www.zf.com)

## About CVS Division

ZF's Commercial Vehicle Solutions (CVS) division is helping shape the future of commercial transportation ecosystems. Our mission is to be the preferred global technology partner to the commercial vehicle industry. Powerfully combining ZF's commercial vehicle systems expertise, extensive technology portfolio and global operations, the division serves the full commercial vehicle industry value chain. As the automotive industry progresses towards an increasingly autonomous, connected, and electrified (ACE) future, ZF's CVS division innovates, integrates and supplies components and advanced control systems that help make commercial vehicles and fleets operate more safely and sustainably. CVS unites ZF's former Commercial Vehicle Technology and Commercial Vehicle Control Systems divisions, the latter being formed following ZF's acquisition of WABCO in Spring 2020.

## 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 defense 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, defense aircraft, defense transporters, defense training aircraft and civil and defense helicopters.

Liebherr's aerospace and transportation systems division employs around 6,000 people. It has three aviation equipment production plants at Lindenberg (Germany), Toulouse (France) and Guaratinguetá (Brazil). These production sites offer a worldwide service with additional customer service centers in Saline (Michigan/USA), Seattle (Washington/USA), Montreal (Canada), Hamburg (Germany), 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 2022, it employed more than 51,000 staff and achieved combined revenues of over 12.5 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 and innovative solutions to its customers.

## Photo



ZF\_CVS\_FuelCell\_AirCompressor.jpg  
Compressor – © ZF

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