

Press release

Additive manufacturing: Liebherr reaches major milestone

Liebherr-Aerospace has made the next major step regarding additive manufacturing of parts with increased complexity for aerospace application. The first-tier supplier has successfully integrated a 3D-printed flex shaft in the Airbus A350 high lift system. The unit has been approved by Airbus as well as by the European Union Aviation Safety Agency EASA for serial production.

Lindenberg (Germany), June 2024 – Liebherr-Aerospace continues to consistently pursue its path in the 3D printing sector. The company has now celebrated a new milestone: a flex shaft, a component with an increased degree of complexity and produced from titanium powder using Additive Layer Manufacturing (ALM), has successfully made its way into aviation. Aircraft manufacturer Airbus as well as EASA, have both approved the flex shaft to enter series production.

Based on the new design options that ALM is offering, Liebherr was able to replace the assembly of seven parts, formerly conventionally manufactured, by just one single 3D-printed component. The lower number in parts leads to improved reliability and significant weight reduction. Compared to the 3D-printed parts previously developed and manufactured by Liebherr, the flex shaft has a higher complexity and represents a next step towards applications in highly integrated systems.

The flex shaft is part of the Airbus A350 high lift system, where it will be integrated in the active differential gearbox of the flap system. The flex shaft transmits the rotary movement to a position sensor and thus compensates for an angle and axis misalignment between gearbox and sensor.

An impressive range of 3D-printed products by Liebherr-Aerospace

The solution provider Liebherr-Aerospace can already look back at quite a range of its products manufactured by ALM. At the beginning of 2019, for example, Liebherr-Aerospace started the serial production of 3D printed parts with the introduction of a printed proximity sensor bracket for the A350 nose landing gear. This bracket was the first-ever introduced Airbus system part qualified for titanium additive layer manufacturing.

About Liebherr-Aerospace & Transportation

Liebherr-Aerospace & Transportation SAS, headquartered in Toulouse (France), is one of 13 product segments of the Liebherr Group and a first-tier provider of on-board solutions in the aerospace and transportation industry, contributing to a more sustainable transport through innovative products, best in class services and performance excellence.

The aerospace product portfolio offered to civil and defense customers includes environmental control and thermal management systems, flight control and actuation systems, landing gears as well as on-board electronics. For rail vehicles of all kinds Liebherr offers heating, ventilation and air conditioning systems, passive and active hydraulic systems for braking, damping, axle steering and levelling. Furthermore, Liebherr serves the commercial vehicle market with trailer cooling systems.

About the Liebherr Group – 75 years of moving forward

The Liebherr Group is a family-run technology company with a highly diversified product program. The company is one of the largest construction equipment manufacturers in the world. It also provides high-quality, user-oriented products and services in a wide range of other areas. The Liebherr Group includes over 150 companies across all continents. In 2023, it employed more than 50,000 staff and achieved combined revenues of over 14 billion euros. Liebherr was founded by Hans Liebherr in 1949 in the southern German town of Kirchdorf an der Iller. Since then, the employees have been pursuing the goal of achieving continuous technological innovation and bringing industry-leading solutions to its customers. Under the slogan '75 years of moving forward', the Group celebrates its 75th anniversary in 2024.

Image



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Ready for series production: Liebherr's 3D printed flex shaft for the Airbus A350 high lift system - © Liebherr

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