Fraunhofer IPK

FRAUNHOFER INSTITUTE FOR PRODUCTION SYSTEMS AND DESIGN TECHNOLOGY IPK

PRESS RELEASE

SIAE 2025: Digital Twins in Airplanes

Let's meet in Paris: From June 16 to 22, at the International Paris Air Show (SIAE) in Le Bourget, Fraunhofer IPK will showcase digital solutions that improve the planning of aircraft interiors as well as product life cycle management in the aviation industry and make it more sustainable.

The Fraunhofer Institute for Production Systems and Design Technology IPK is placing data, how it is handled and how to apply it to the circular economy as overarching topics at the forefront of this spring's trade fairs appearances. After presentations at Hannover Messe and AIX in Hamburg, it is now exhibiting its methods and technologies for aviation to Paris: At SIAE 2025, researchers from the Berlin institute will bring an aircraft interior wall from Diehl Aviation in its original size to demonstrate their digital engineering approach. They are using intelligent IT integration, immersive engineering environments and sustainable product ecosystems to better plan aircraft interiors and improve their product life cycle management, making them more sustainable.

The digital product passport in connection with cross-company digital twins and the optimization of end-of-life decisions is placed at the center of attention. Digital product passports can be used to exchange data on materials, components and recyclability across the entire supply chain. This makes quality characteristics and environmental impacts transparent and promotes reuse. Original equipment manufacturers (OEMs) can use digital product passports to work seamlessly with suppliers from the product development stage onwards. The researchers will showcase a prototype of a product passport.

If well-thought-out product passports and assistance systems for the circular economy are integrated with virtual (VR) and augmented reality (AR), semantic web technologies and the industrial metaverse, processes can be optimized, and operations can be made more future-proof and sustainable. We show how this works with enVAR, a VR platform that brings designs into interactive 3D spaces for early validation, reducing errors and lowering costs. In addition, our AR solutions for supporting employees improve assembly and maintenance. They overlay real-time instructions in the field of view of skilled workers, helping to minimize downtime and increase efficiency.

We invite you to visit us at the Fraunhofer AVIATION & SPACE display:
Hall 2c, booth C 358

Visit our website for further information on our aviation solutions:
www.ipk.fraunhofer.de/fraunhofer-ipk-goes-aerospace-en

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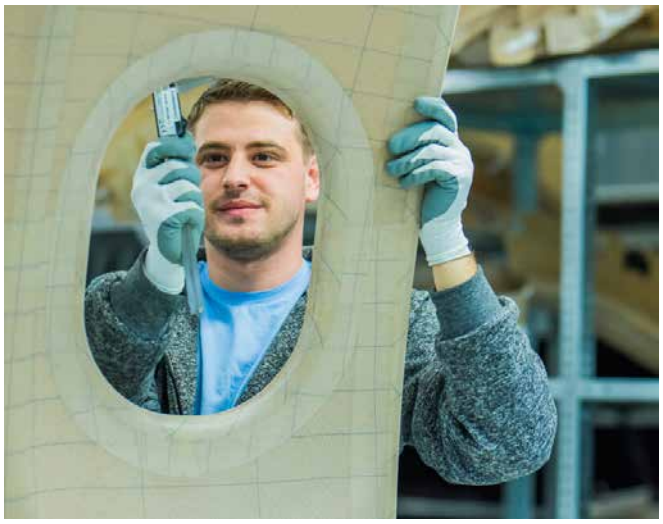
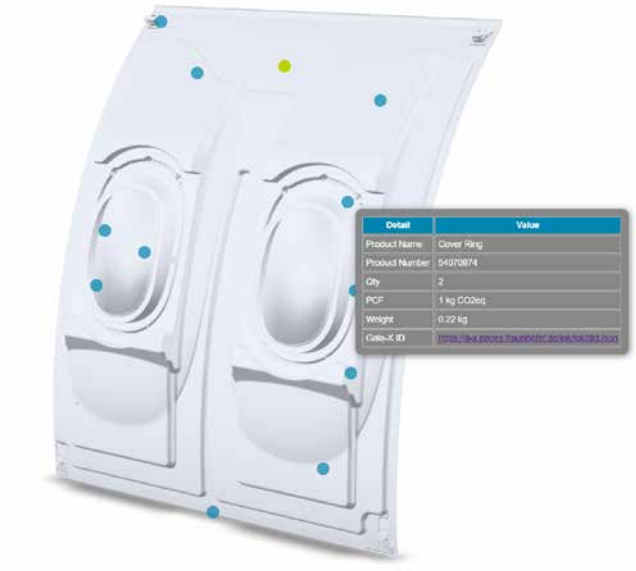


The example of an aircraft interior wall from Diehl Aviation is used to demonstrate how even complex and large-format products can be digitally reproduced.
© Diehl Aviation



Digital visualization of an aircraft interior wall
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The **Fraunhofer Institute for Production Systems and Design Technology IPK** offers system solutions with a strong digital focus for the entire spectrum of industrial tasks – from production management, product development and manufacturing to maintenance of capital goods. We also transfer R&D solutions in production technology to areas of application outside of industry such as transport and security.