



Premium AEROTEC shows the potential that CFRP with a thermoplastic matrix holds for the future and presents the world's first demonstrator for an A320 pressure bulkhead at ILA

Augsburg/Bremen/Berlin, 25 April 2018 – The aerostructures supplier Premium AEROTEC has developed and manufactured a major component in the aircraft's primary structure in CFRP with a thermoplastic matrix. The full-scale and close-to-production demonstrator for the pressure bulkhead of the A320 Family was developed and produced by the company in around four months. At the ILA airshow in Berlin the demonstrator can be seen at Premium AEROTEC's trade fair stand (Hall 2, Stand 201).

Premium AEROTEC heads another advancement in composite technology with this development. With this innovation the company expands the application spectrum for CFRP with a thermoplastic matrix in the aircraft fuselage, far beyond its current usage in small parts. In cooperation with partners, Premium AEROTEC is now proving its unique ability to develop and manufacture large aircraft components made out of CFRP with a thermoplastic matrix.

"We are a highly innovative company within the aviation industry and successfully show the growing possibilities offered by thermoplastics for manufacturing CFRP components", said Dr. Thomas Ehm, Chairman of the Executive Board of Premium AEROTEC. "The innovative power that we needed for this success came from our comprehensive industrial experience in CFRP, our in-house development capacity and close cooperation with strong partners."

The full-scale demonstrator of a pressure bulkhead for an A320 aircraft, exhibited at the ILA, consisted of eight segments of equal size. These are connected to each other using state-of-the-art welding technology. The weldability of thermoplastics constitutes a huge advantage of this material. Premium AEROTEC uses this property consistently and thus substitutes traditional riveting. This saves on time and costs. The entire development and design was executed by Premium AEROTEC, and manufacturing of the individual components was done in cooperation with the Institute for Composite Materials (IVW) in Kaiserslautern. Premium AEROTEC developed a technical solution for welding warped components in cooperation with the DLR Centre for Lightweight Construction Production Engineering in Augsburg.

In comparison to the current traditional pressure bulkhead for the A320 Family, created with riveted aluminium components, the pioneering CFRP version weighs less but has the same mechanical properties, as well as having shorter production times and more economic manufacturing costs. Over the next few months, Premium AEROTEC will gather more knowledge on the technologically expedient design and efficient construction for creating large components like these from thermoplastic CFRP and drive the qualification of the necessary processes forward.



Premium AEROTEC's expertise with thermoplastic materials is gleaned from using them in smaller parts in the A350 XWB for many years. Here, thermoplastic material is used to connect CFRP frames with CFRP skin sections, to give an example. Premium AEROTEC manufactures over 4,000 CFRP components with a thermoplastic matrix like these per aircraft using a highly automated volume production process. This technology can now also be used for larger aircraft components and combined with welding procedures. The presented demonstrator shows that this concept lays a significant part of the foundations for the next generation of aircraft fuselage shells with high production rates.

In addition to the development of the pressure bulkhead demonstrator, which was financed internally, Premium AEROTEC is also pushing the advance in thermoplastic technology forward in publicly funded projects. At the start of 2018, the OSFIT project (One-Step Fully Integrated Thermoplastic Frames) for developing thermoplastic frames began, sponsored by the Federal Ministry for Economic Affairs and Energy within the scope of the federal government's current aviation research program (LuFo V-3). The Institute for Composite Materials (IVW) in Kaiserslautern, the Automotive Center Südwestfalen (ACS) in Attendorn and both Fraunhofer research institutes, the IGCV (for casting, composite and processing technology, in Augsburg) and the IFAM (for manufacturing technology and advanced materials, in Bremen), are also involved in the project, with Premium AEROTEC heading the group.

Premium AEROTEC is a global player in the aerospace industry and generated revenues of 2 billion euros in 2017. The company's core business lies in the development and production of metal and carbon fibre composite aircraft structures. The company has sites in Augsburg, Bremen, Hamburg, Nordenham and Varel in Germany, as well as in Braşov in Romania. For further information see: www.premium-aerotec.com.

Contact:
Markus Wölfle, +49 (0) 821 801 63770