Press Release

Premium AEROTEC first aviation supplier to receive complete process qualification for additive titanium manufacturing in multi-laser systems

Augsburg, 17 May 2019 – Premium AEROTEC has achieved another important milestone in additive manufacturing (3D printing): After a successful industrial process audit carried out by Airbus on 11 April and signing of the qualification report on 25 April 2019, Premium AEROTEC was the first aviation supplier to achieve a complete process qualification for additively manufactured titanium parts in multi-laser systems.

“Premium AEROTEC has thus once more proved that it is an international pioneer and a technological leader in the additive manufacturing of structural components which are approved for aviation,” stated Dr. Jens Walla, Head of Production and CEO of Premium AEROTEC. The complete process qualification for multi-laser systems enables the company to employ additive procedures in the same ways as they use classic manufacturing processes. Expensive in-process sampling and special tests are no longer needed. Additive manufacturing of metal therefore becomes far more economical and can be used in a far wider scope in the aviation sector.

Premium AEROTEC already recognized the potential of additive manufacturing early on:
In 2013, the first development measures were implemented, and in 2014 a system was procured for additive manufacturing using laser powder bed fusion. In 2016, the A400M vent bend family, double-walled titanium tubes from the ventilation system of the tanker version of the A400M, received the first individual component qualification. Thus Premium AEROTEC became the first company in the world to execute 3D series production of complex titanium aircraft parts. From development to industrial implementation and manufacturing to delivery of the component in accordance with aviation law, this company has mastered the entire process chain for additively manufactured titanium components.

Before this new technology was introduced for civil aircraft, the regulatory authorities and Airbus had set very high thresholds, specifically in terms of statistically proving a high level of process safety and reproducibility as well as a very high material quality. Over the past two years, many intensive investigations were required to meet these thresholds and in order to understand and master the complex interplay between the laser powder bed fusion process and its interactive effects on the requisite downstream processes (e.g. heat treatment, hot isostatic pressing). To achieve this, several thousand material samples were tested in different test programs, a highly time-consuming and resource-intensive process.

The successful process qualification was made possible by close cooperation between interdisciplinary teams from Engineering, Technology, Production, Quality Assurance and the respective support functions as well as a great deal of team spirit. In addition to the process qualification, the industrial qualification for the entire process chain, including all auxiliary processes and suppliers, had to be assured simultaneously.

Premium AEROTEC is a global player in the aviation industry and achieved a turnover of € 2 billion in 2018. Its core business is the design and construction of aircraft structures in metal and carbon fibre composite material. The company has sites in Augsburg, Bremen, Hamburg, Nordenham and Varel in Germany as well as Braşov in Romania. Premium AEROTEC employs around 10,000 people in total. Further information is available at www.premium-aerotec.com.

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