Press release

Premium AEROTEC and Boeing demonstrate CFC application possibilities for wings at the ILA

Augsburg, 10 September 2012 – Premium AEROTEC has developed and manufactured a wing spar with a sinewave-shaped web from carbon fibre composites (CFC), thus demonstrating a possible application of CFC materials in wing construction. The component was the result of a two-year technology project in collaboration with Boeing. Premium AEROTEC is exhibiting a corresponding demonstrator at the ILA in Berlin.

Within this project, Premium AEROTEC was responsible for analysing, designing, and manufacturing of the entire demonstrator ('Design & Build'). The demonstrator represents a 2.5 metre-long section of a heavily loaded wing spar on a 1:1 scale. The web's sinewaved-shaped form allows for a significant reduction in the weight of the component compared to standard spars today which have monolithic or discretely reinforced even webs.

Manufacturing the sinewave spar as one monolithic component using the patented Vacuum Assisted Process (VAP®) with just one single infusion cycle (One Shot), allows to reinforce the junction area between flange and caps with endless CFC fibres. Since no discrete connecting elements such as bolts, doublers or bonds are used, the construction method suggested by Premium AEROTEC, enables additional weight savings (around ten percent according to Premium AEROTEC's assessment) compared to other manufacturing concepts for sinewave spars.

In addition to the weight reduction for such a massive structural component, the number of components and the process and assembly steps could also be reduced considerably. This offers considerable advantages in respect of manufacturing and maintenance costs. The demonstrator shows that the decisive geometric and strength-relevant features for use in commercial aircraft can be fulfilled with the VAP® method at high reproducibility.

With this project, Premium AEROTEC underlines its capability in 'Design & Build' projects by closely interlinking and consistently developing the latest design methods and manufacturing technologies, finding the optimum solution between component performance and manufacturing costs.

Premium AEROTEC generated revenues of 1.3 billion euros in 2011. Its core business is the development and manufacturing of metal and carbon composite aerostructures and the associated equipment and production systems. The company has production plants in Augsburg, Bremen, Nordenham and Varel in Germany, and in Braşov (Romania). Further information can be found at www.premium-aerotec.com.

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