



Press Release

Bauhaus Luftfahrt and Atena Engineering Present the Hybrid Rotor

Berlin – 8. June 2010: On this year's ILA Berlin Airshow from 8th to 10th of June, Bauhaus Luftfahrt and Atena Engineering will present their jointly-developed hybrid rotor.

To take off like a helicopter and fly as fast as a plane: that was the motivation at Bauhaus Luftfahrt for searching for an alternative rotor system. The hybrid rotor is an invention by Dr. Jost Seifert, Director of Programming Technology, Bauhaus Luftfahrt, which is known as the think tank for developing visionary concepts for the future of flying. The engineering part and the construction of the flight models were carried out by Atena Engineering, an innovative engineering service provider in Munich.

The hybrid rotor is a novelty, for which Bauhaus Luftfahrt has received a German Patent in the meantime. It forms an advantageous combination of two previously known rotor systems, the **cycloidal propeller** and the **Flettner rotor**.

In the aviation application, the cycloidal propeller takes care of the propulsion and controllability, whereas the Flettner rotor provides the lift. Thanks to its ability for vertical thrust vectoring, the hybrid rotor also provides an alternative to the helicopter rotor or tilting rotor for vertical takeoff aircrafts.

Once CFD analyses had shown the principle operability from an aerodynamic aspect, Atena Engineering started the design work for a test bench. At the same time, remote control flight models were constructed to test the suitability of rotating cylinders (Flettner rotor) for aircrafts by simple means. The promising results from the first analyses led to the development and construction of a complex flight demonstrator, which could provide the required scientific insights and practical experience. Toward this aim, the aircraft is equipped with a flight control computer, which does not only record important flight data but also has to navigate the unconventional aircraft. A particular challenge of the project was to not only control the enormous gyroscopic forces that are to be expected from a rapidly rotating cylinder but to use them systematically for flight navigation. With this development, the team "Bauhaus - Atena" is truly breaking new ground in science and technology.

Jost Seifert of Bauhaus Luftfahrt explains: "The special characteristics of the hybrid rotor make it an attractive technology for mission platforms. A use in the military sector for drones and unmanned aerial vehicles would ultimately also lead to its application to passenger transportation."

Jost Seifert of Bauhaus Luftfahrt and Herbert Hacker, Business Unit Leader Aerospace of Atena Engineering look forward to meeting you and answering your questions at the Assystem booth at the Suppliers Center (Hall 11 Booth 123.)

About Bauhaus Luftfahrt e.V.

Bauhaus Luftfahrt was founded by the three aerospace companies EADS, Liebherr-Aerospace and MTU Aero Engines together with the free state of Bavaria. The non-profit organization is an internationally oriented think tank with the aim to develop sustainable, innovative solutions for future air travel and air transportation. Its research projects take a holistic approach to the complex system of aviation, taking into account technical, economic, social and ecological aspects.

About Atena Engineering GmbH

Atena is an experienced partner for design and analysis in high-end and middle-end engineering. Extensive consulting services in the areas of project management and project engineering, qualification and certification, quality management as well as test and production engineering complement the portfolio of the company. Atena is known for its comprehensive development competencies in the areas of aerospace, automotive, gas, turbines and energy. A staff of 250 employees in the headquarters in Munich and in four further German locations currently operates for Atena.

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