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Press information

Liebherr Seals Its Participation in Clean Sky 2

August 2015 – Three Liebherr companies have confirmed their participation in the Clean Sky 2 Joint Technology Initiative (JTI): While Liebherr-Aerospace Lindenberg GmbH, Lindenberg (Germany), one of the founding members of Clean Sky 2, has recently signed the Grant Agreement Papers, Liebherr-Aerospace Toulouse SAS, Toulouse (France) and Liebherr-Elektronik GmbH, Lindau (Germany) have joined the consortium as affiliates.

From 2015 to 2022, Clean Sky 2 will pave the way for the aerospace industry in achieving the environmental objectives defined by the ACARE (Advisory Council for Aeronautical Research in Europe). Moreover, this major initiative in the "Horizon 2020" European research and innovation program will ensure continuity to Liebherr-Aerospace's activities in the Clean Sky 1 JTI scheduled from 2008 to 2016. These activities have focused on the development of key technologies for the More Electric Aircraft in the fields of flight control for fixed-wing aircraft and helicopter as well as environmental control. Key technologies in the latter field include an advanced electrically driven air conditioning system in full-scale configuration for future single-aisle aircraft. Here, development activities have focused on the maturity and robustness of major components. An electro-thermal wing ice protection system and a supplemental cooling system, which is based on centrifugal compressor technology and uses new refrigerant fluid according to future environmental rules, are other examples in the field of environmental control.

Further, a skin heat exchanger developed and manufactured by Liebherr-Aerospace Toulouse SAS was successfully tested in a dedicated flight test campaign in the past year. The flight tests were conducted on an A320 provided by the National Aeronautics and Space Research Center of the Federal Republic of Germany (DLR). In the coming months, two different electrical environmental control systems for regional and single-aisle aircraft, which were also manufactured by Liebherr-Aerospace in Toulouse, will be integrated and flight-tested on an ATR 72 and an A320 flying test bench.

Next Steps to be taken in Clean Sky 2

The next steps in the Clean Sky 2 JTI include the improvement in maturity and robustness of these technologies and systems to attain Technology Readiness Level 6 by 2022 - Level 6 means that the technology is mature enough for demonstration in a relevant environment – and also to go beyond these technologies at system integration level.

In the field of environmental control systems Liebherr-Aerospace will mainly do research on the refinement of electrical environmental control system (e-ECS) architectures including thermal management to demonstrate and validate the full-scale capabilities of the e-ECS in-flight. This includes full performances on a single-aisle aircraft to reach Technology Readiness Level 6. A supplemental cooling system will also be tested on ground in a test bench at the Airbus facility in Hamburg (Germany). For the segment of regional aircraft, a full-scale demonstrator concentrating on performances will be tested on ground, and a full-scale demonstrator for ice protection system will be developed and is to reach Technology Readiness Level 6.

In the field of flight control, Liebherr-Aerospace's research will focus on an innovative system architecture for an electrical wing and demonstration of the added value of actuation system integration. In parallel, the scalability and the modularity of the sub-systems will be demonstrated in a full-scale test facility.

In addition, activities regarding landing gears will place emphasis on the integration of electrically driven power packages in a nose landing gear system. The efficiency of a locally generated hydraulic power system and sub-system shall be demonstrated on a full-scale test rig.

Furthermore, the design of electromechanical actuation systems for rotorcraft will be part of Liebherr-Aerospace's activities up to flight test demonstration on a full-scale prototype. The system will involve partners providing an electrical braking system and a lightweight structure for the landing gear system.

Liebherr-Aerospace is a leading supplier of systems for the aviation industry

Liebherr-Aerospace & Transportation SAS, Toulouse (France), is one of eleven divisional control companies within the Liebherr Group and coordinates all activities in the aerospace and transportation systems sectors.
Liebherr-Aerospace is a leading supplier of systems for the aviation industry and has more than five decades of experience in this field. The range of aviation equipment produced by Liebherr for the civil and military sectors includes flight control and actuation systems, landing gear and air management systems as well as gearboxes. These systems are deployed in wide-bodied aircraft, single aisle and regional aircraft, business jets, combat aircraft, military transporters, military training aircraft, civil helicopters and combat helicopters.
Liebherr's aerospace and transportation systems division employs around 4,900 people. It has four aviation equipment production plants at Lindenberg (Germany), Toulouse (France), Guaratinguetá (Brazil) and Nizhny Novgorod (Russia). These production sites offer a worldwide service with additional customer service centers in Saline (Michigan/USA), Seattle (Washington/USA), Montréal (Canada), Sao José dos Campos (Brazil), Hamburg (Germany), Moscow (Russia), Dubai (UAE), Singapore and Shanghai (People's Republic of China).

Caption
Electro-mechanical actuator developed by Liebherr-Aerospace

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Published by
Liebherr-Aerospace & Transportation SAS
Toulouse, France
www.liebherr.com