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## **New DLR air vehicle simulator – exploring the future of aviation with Rheinmetall**

The German Aviation and Space Centre (DLR) inaugurated its new AVES air vehicle simulator on 5 July 2013 at DLR's Braunschweig site. Equipped with the latest Rheinmetall simulation technology, this state-of-the-art research facility is operated by the DLR Institute of Aviation Systems Engineering.

AVES not only permits experimental modification of existing aircraft, but also offers a means of examining the flight characteristics of futuristic aircraft concepts. This makes AVES ideal for investigating the technical and aviation challenges posed by all-wing aircraft, for instance.

The new facility features dynamic and static simulators, with an interchangeable exact replica of the cockpit of an Airbus A320 or Type EC-135 Eurocopter installed in between. Both simulators can be flexibly programmed with software specially developed for DLR – something that sets this system apart from conventional type-related flight training simulators.

The main simulator is equipped with an electrically powered movement system, resulting in a highly authentic flight simulation experience with a 240° view from the cockpit. This highly dynamic simulator replicates movement sequences such as the landing bump, turbulence and crosswinds in a very realistic way. A fixed installation simulator with a movement motor is available for flight simulations that do not require manoeuvring the aircraft. A cluster of sixty computers supplies each of the 15 high-quality LED projectors in the simulators, controlling the electrical movement systems with extreme precision.

One of the first projects conducted in the new simulator centre will focus on special flight-related pressures on pilots. In cooperation with the Aviation and Space Psychology department of the DLR Institute of Aviation and Space Medicine, new training concepts for flight personnel are to be investigated. In the helicopter field, research will focus on areas such as active stick control, support systems for flight and landing in bad weather, as well as landing on ship decks.

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