FLYING MORE SUSTAINABLY WITH “SHARK SKIN”: LUFTHANSA GROUP TESTS NEXT-GENERATION AEROSHARK

News / Airlines, Maintenance / Trainings

An Airbus A319 of Lufthansa City Airlines is the world’s first test aircraft for a new generation of fuel-efficient AeroSHARK technology. Lufthansa Technik will test approximately 70 transparent film patches measuring 20 × 20 centimeters each on the short-haul aircraft with registration D-ABGK together with its development partner Surventis (formerly BASF Coatings) through February 2027. These material samples are attached to selected areas on the sides of the fuselage as well as on the inside and outside of the engine cowlings. Their performance will be analyzed over the next few months during regular flight operations between Munich and Hamburg and is expected to provide insights for the further development of the AeroSHARK technology. The long-term goal is to tap into additional efficiency potential in flight operations through the broader use of AeroSHARK, thereby contributing to greater sustainability in air travel.

For passengers aboard the Lufthansa City Airlines aircraft bearing the name of the city “Starnberg,” the test remains virtually invisible. The material is transparent and hardly noticeable to the eye. Flight operations also remain unchanged. For informational purposes, a welcome panel featuring the AeroSHARK design at the aircraft’s entrance draws the attention of interested travelers to the test.

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The patch test: Research meets real-world flight operations

To date, the fuel-saving AeroSHARK film has been used on the fuselage and engine cowlings of long-haul aircraft certified for this technology. With their current research and development work, Lufthansa Technik and Surventis are now taking an important step forward. Together, they are developing the next-generation material, which could also be used on wings as well as horizontal and vertical stabilizers in the future. These areas are exposed to higher aerodynamic loads.

With the test run that has now begun, various new AeroSHARK material samples are being evaluated under real-world conditions. The 70 test patches differ in terms of their material and layer composition. The goal of the study is to identify the material that combines the highest durability with easy application, straightforward cleaning, and residue-free removal. Lufthansa Technik conducts regular material inspections during regular ground time in Hamburg.

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Inspired by nature

To date, AeroSHARK is the only riblet technology approved for commercial aviation. It consists of a specially developed surface film with microscopically fine grooved structures modeled after shark skin. The skin of sharks features fine grooves aligned with the direction of flow - known as riblets - which reduce frictional drag and improve flow characteristics in water. AeroSHARK applies this effect to aviation: The functional surface film features riblets only about 50 micrometers high, precisely aligned with the airflow. It is applied to an aircraft's fuselage and engine cowlings and reduces aerodynamic drag during flight. The technology reduces fuel consumption and CO? emissions on every flight—currently by about 1 percent.

22 Lufthansa Group long-haul aircraft have already been equipped with AeroSHARK

As of July 2026, the Lufthansa Group has already equipped 22 aircraft with AeroSHARK: SWISS's entire fleet of Boeing 777-300ERs (twelve aircraft), five Boeing 777Fs from Lufthansa Cargo, four Boeing 777-200ERs from Austrian Airlines, and one Boeing 747-400 from Lufthansa. As a result, the Lufthansa Group's AeroSHARK fleet saves 19 metric tonnes of fuel and 60 metric tonnes of CO? daily. AeroSHARK is also gaining traction across the industry: Airlines outside the Lufthansa Group are also already using this innovative film to increase the fuel efficiency of their long-haul aircraft.

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