



Environment-Friendly Alenia Aermacchi Aircraft Stretches its Wings with modeFRONTIER

The optimization platform developed by ESTECO assisted the Italian leader of complex aeronautical systems in enhancing aerodynamic performance by 2.5%, while reducing wing weight by 4%

Trieste (Italy), 12th March 2013 – **Alenia Aermacchi**, the Italian leader in **complex aeronautical systems** for commercial and defense aircraft, leveraged modeFRONTIER software in wing design optimization. The platform, developed by ESTECO, turned essential in **enhancing aerodynamic performance by 2.5%** while reducing wing weight in new generation planes.

In an ambitious collaborative venture, Alenia Aermacchi is heading the Green Regional Aircraft (GRA) design team of the **The Clean Sky Joint Technology Initiative**, committed to developing **environmentally friendly aircraft**. Domestic air travel of the future will meet **demands** for: weight reduction, aerodynamic efficiency, high level operative performance, compliance with emission standards, and respect of noise limits.

Alenia Aermacchi choose modeFRONTIER multiobjective platform to reach ambitious goals like **lowering aircraft drag**, wing weight, and environmental impact of lower speed conditions, while enhancing the **overall environmental performance** measured by fuel consumption and noise generation. Seeking the most promising solution for this **new generation aircraft**, the studies performed with modeFRONTIER involved the optimization of two wing shapes: one to analyze **aerodynamic performance**, and another to pursue **weight reduction** of the wing.

modeFRONTIER helped achieving **remarkable enhancement** for both wing configurations, while still complying with Top Level Aircraft Requirements (TLAR). “modeFRONTIER has proved to help effectively the design team in identifying feasible solutions and achieving **a 2.5% enhancement of aerodynamic performance** and a **4% wing weight reduction**”, says Enrica Marentino, CFD Specialist at Alenia Aermacchi.

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About ESTECO SpA

ESTECO is a pioneer in numerical optimization solutions, specialized in research and development of engineering software for all stages of the simulation-driven design process. Perfecting engineering and reducing complexity in the design process is our vision. Founded in 1999, the company is headquartered in Area Science Park in Trieste (Italy) and currently employs 40 professionals and serves more than 250 international clients including BMW, Daimler, Ferrari, FIAT, Ford Motor Company, Honda, Mazda, Toyota, reaching a revenue of more than 4 million euros in 2011. www.esteco.com

About modeFRONTIER

modeFRONTIER is an integration platform for multi-objective optimization, automation of design simulation processes and analytic decision making. The software provides seamless coupling with engineering tools within

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different disciplines and its powerful workflow allows for the execution of complex chains of design optimization. Through innovative algorithms and advanced data visualization tools, modeFRONTIER helps companies identify the set of best possible solutions, while eliminating guesswork and introducing rigor and automation.

About Alenia Aermacchi

Alenia Aermacchi is the global player which leads the Finmeccanica aeronautics business by continuously increasing its ability to design, build, integrate and support complex systems for both commercial and defense markets worldwide. In an equal-share joint venture with EADS, it owns ATR, which dominates the regional turboprop market. With the Russian company Sukhoi it is developing and marketing the Superjet 100. For more information visit: www.aleniaaermacchi.com

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