

Case Studies: Gas Turbine Composite Air Intake

Our customer required an “Airmeter” air intake to accurately control and monitor air flow into their engines, allowing them to optimise their latest gas turbine engine designs.



Highly Tuned & Lightweight

To ensure result accuracy, the customer required exacting geometric and stiffness values while minimising mass. Our composites design experience meant we successfully predicted tool expansion effects and maintained intake aero profiles, appreciating complexities of bonding-in and retaining sensors penetrating the structure. Through continuous engagement with the manufacturer, we ensured stiffness was optimised through the design process, giving confidence that the final design met the stringent requirements for internal surface quality, probe positioning and dimensional precision.



Seamless Sensor Integration

To manage inlet flow characteristics, numerous sensors were integrated into the intake without compromising the overall structural integrity. Our analysis team worked with the manufacturer to produce a novel solution to mount and position sensors into the complex geometric form quickly, accurately and efficiently.

Short Timescales

A 10-month timeframe was set for the design, analysis and manufacture project. Working closely with the manufacturer, we ensured the design met requirements and remained practical and cost-effective to rapidly build. Continuous reviews with the manufacturer ensured that the Airmeter was delivered on time and on cost, with testing commencing immediately upon receipt!

Engineering
Design

Structural
Analysis

Design
PM

Composites
Design

frewer
Engineering