



R&D. Design. Manufacture. Technical Support.

Research and Development

Drag reduction, noise attenuation and materials joining techniques
— promoting “green” technologies

Production and Engineering

Laser perforation of sheet materials for ice protection and drag reduction
Design and manufacture of innovative production machinery

Project Management

Project leaders on collaborative research projects



Hybrid Laminar Flow Control (HLFC) for Aircraft and Engine Drag Reduction



HLFC Boeing 787-9

Laser perforated surface featured on the fin and tailplane



EU Collaborative HLFC Research

Laser perforated suction surfaces and structures for numerous wind tunnel and flight test experiments



Airbus A320 HLFC Flight Test of Vertical Fin

Flight test of laser perforated surface featured on the fin



ALTTA HLF Nacelle

Mockup 1:3 scale built and fitted to engine model. One side depicts the Turbulent nacelle, the other the HLF nacelle. This enabled verification of maintenance access and was used to display the comparison between nacelles.



NASA - LaRC/Boeing/Douglas/ Rockwell F16XL Supersonic LFC Flight Test

First programme to research and test laminar flow on swept wings at speeds a high speed civil transport might fly.

F16XL perforated titanium glove



The active (perforated titanium) glove was fitted on the left wing of the F16XL to stabilise airflow over the wing.

A smaller, passive glove was fitted on the right wing to obtain baseline configuration data.

The suction system located below the panel and within the fuselage draws part of the air flowing over the wing through 10 million nearly microscopic laser-cut holes in the glove.



Fuel Efficiency

Laminar flow conditions reduce aerodynamic drag, thus reducing fuel consumption and lowering operating costs.

Linear Friction Welding (LFW) for Aerospace Applications

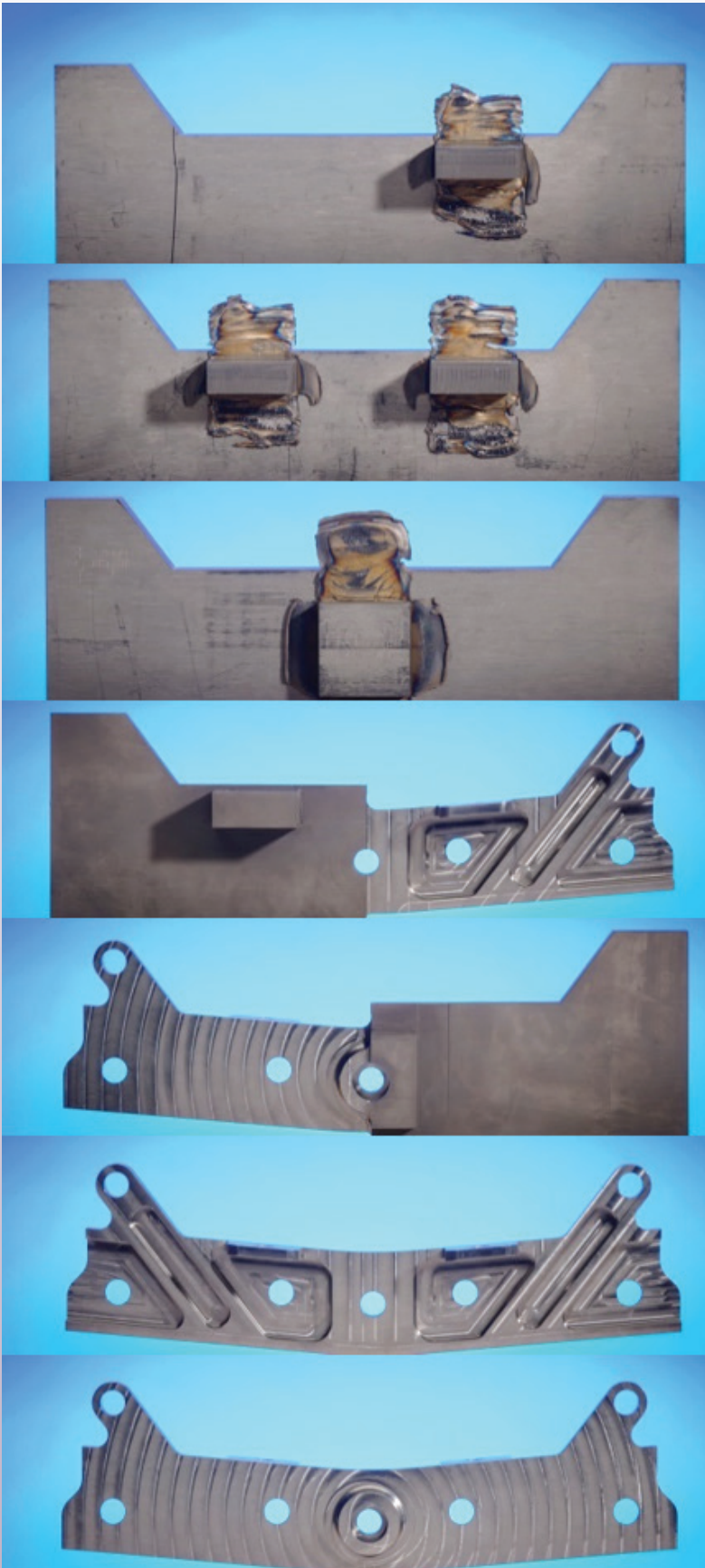
Reduce Material Costs with Near Net Shape

Many near net shape manufacturing techniques are available to the aerospace industry. Casting, powder metallurgy, metal injection moulding, spray forming, laser deposition or fusion welding processes have applications for producing preformed or tailored blanks.

Due to stringent structural requirements of current airplanes, which arise from the need to obtain the best efficiency by minimising weight, only a few of these pre-forming processes are entirely suitable. Efficient parts usually need to have a controlled forged microstructure, not a melted one provided by the aforementioned processes.

CAV Advanced Technologies, TWI, Thompson Friction Welding and Ten Solutions have partnered to engage in a UK Government supported project aimed at near net shape manufacture by the use of blanks assembled from simple shapes using Linear Friction Welding.

The project is named TiFab and although primarily aimed at titanium components, due to the potentially high cost savings arising from the cost of the material, the project recognises that the LFW process offers advantages for candidate parts made from a wide range of metals.





Consulting
R&D
Design Manufacture
Technical Support

CAV Ice Protection

Our sister company, CAV Ice Protection, is a Tier 1 aerospace supplier that specialises in the design, certification and manufacture of ice protection systems for commercial, civilian and military aircraft.

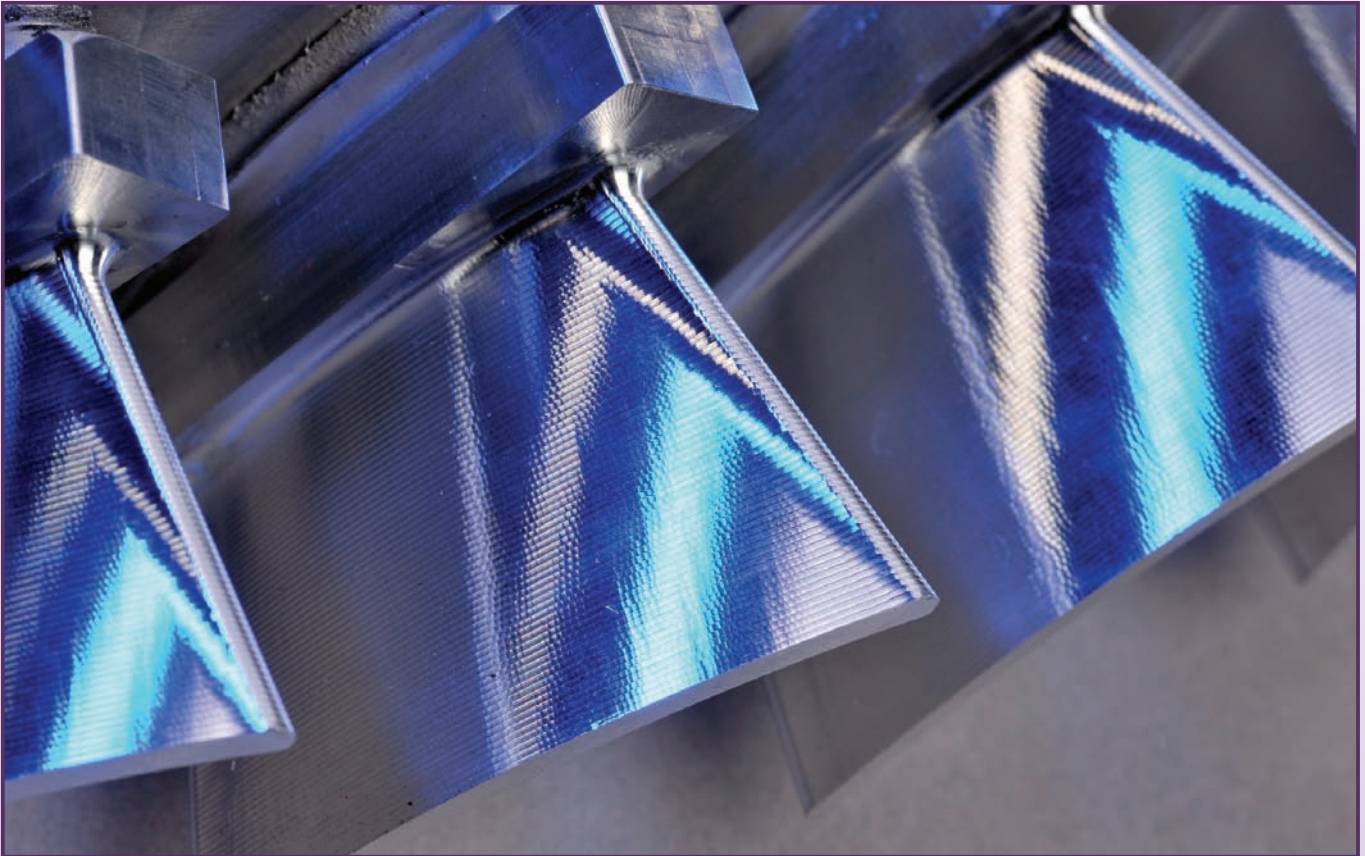
OEM Design & Consulting

CAV Ice Protection design engineers are internationally recognised experts in all facets of design, certification, system integration and manufacturing of Anti-Ice and De-Ice IPS.

Other services include consulting related to testing, international approvals, component qualification, electrical system design, reliability and safety analysis, aerodynamic thermodynamics, quality, and manufacturing design.

Airborne Ice Protection Systems

TKS Ice Protection Systems are custom designed as Flight Into Known Icing (FIKI) certifying systems for single-engine, twin-engine and turbine aircraft. Other products include SLD Guard™ and Hybrid Ice Protection Systems.



CAV Advanced Technologies

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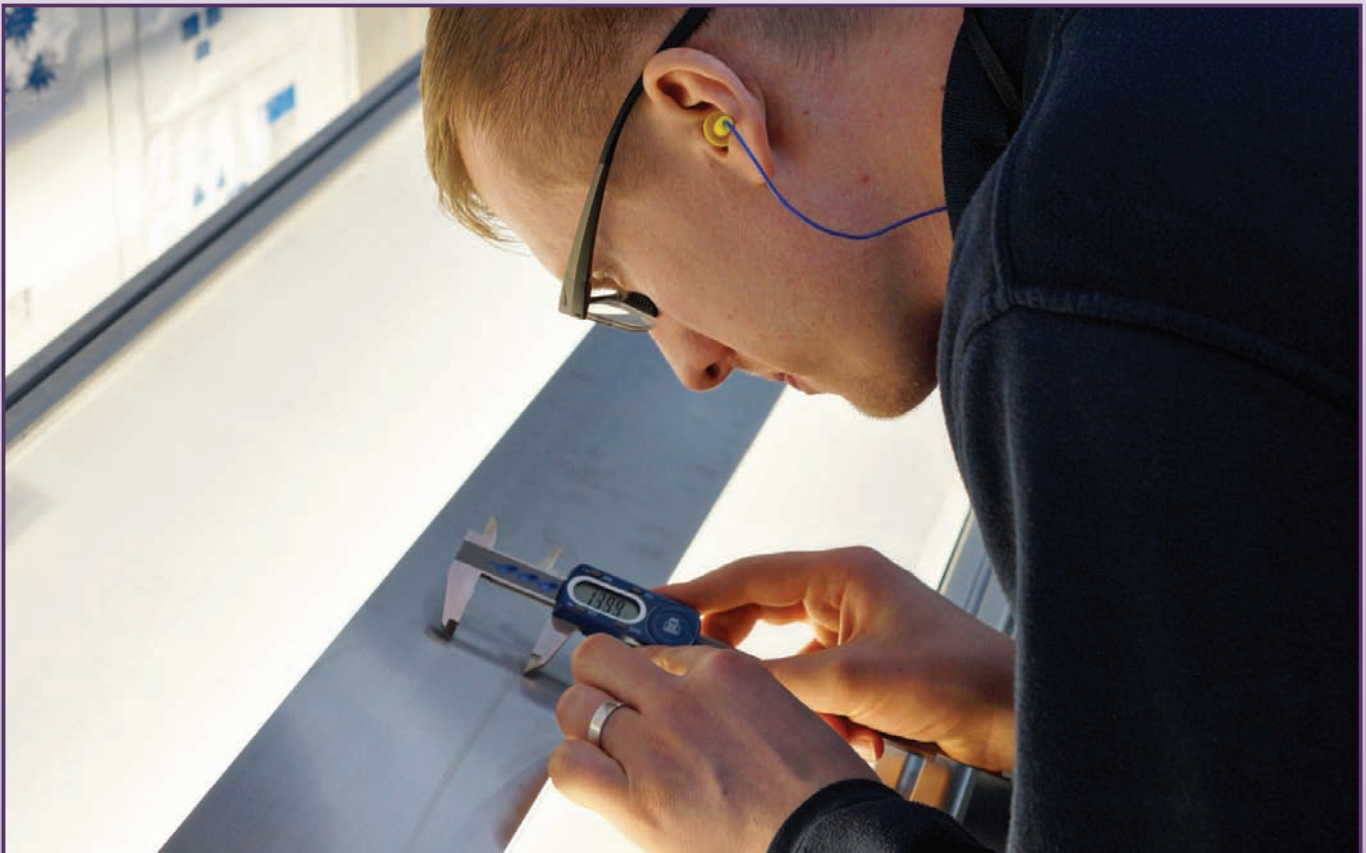
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