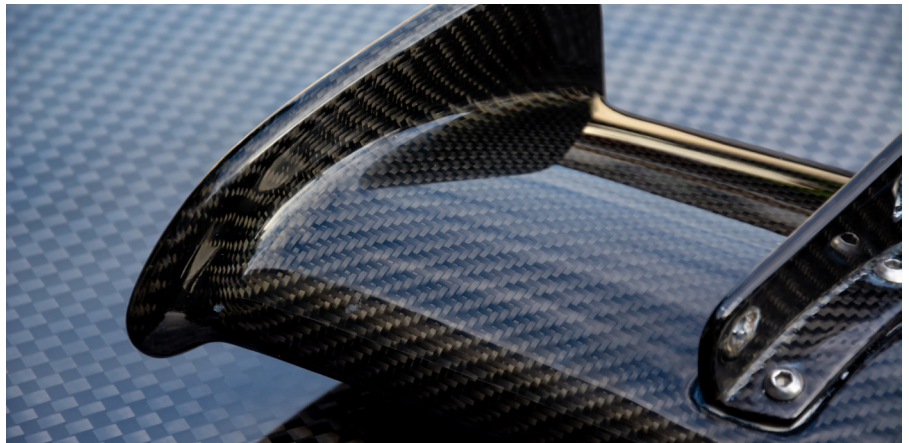


FACT SHEET

# CARBON FIBRE COMPOSITES

Reach your full potential with Carbon Fibre Composites

With the constant drive for the reduction in weight, design flexibility, cost and durability composites are now being increasingly used across a broad range of industries.



## Fibre Composites

The use of carbon fibre composites across a wide range of industries offers a step change in material performance in terms of strength to weight ratio and the opportunity to produce parts with more complex geometries.

Whilst carbon fibre composites are not a new technology, their use in extreme environments presents many challenges for design engineers to overcome.

For example, composites used for aircraft engine fan blades must be able to operate in temperatures from +40°C on the ground to -50°C at altitude, be able to withstand bird strikes and if damaged fail in a manner that can be contained and not result in damage to the aircraft.



## Quality Control of Manufacturing Process

As carbon fibre composites become more widely used across industries, quality control in the manufacturing process is essential to maintain high safety standards.

We offer various techniques to aid clients in the quality control of their manufacturing process:

- **Differential Scanning Calorimetry (DSC)** – testing of uncured carbon fibre composite to BS EN ISO 11357-5 to determine cure properties and enable life monitoring of raw materials prior to production. Cured carbon fibre can be checked to confirm that complete cure has been achieved and to determine the Glass Transition Temperature (T<sub>g</sub>) value.
- **Dynamic Mechanical Analysis (DMA)** – used to measure the T<sub>g</sub> and thermal properties of the cured product.
- **Optical Microscopy** – used to determine the position of fibres, resin richness, dryness and porosity.
- **Overlap Shear Testing** – employing the latest Instron 30kN equipment to test the properties of the adhesives used to bond metallic materials to the composites following BS EN ISO 2243-1.

## Inspection of Finished Components


Advanced Non-Destructive techniques can be used to assess the internal integrity of a component.

We offer the following techniques that are able to create a permanent record of the internal features of a component:

- **Ultrasonic Phased Array**
- **X-ray Computerised Tomography** – creates a high-resolution 3D model that can be examined using advanced software.



## FOR MORE INFORMATION

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