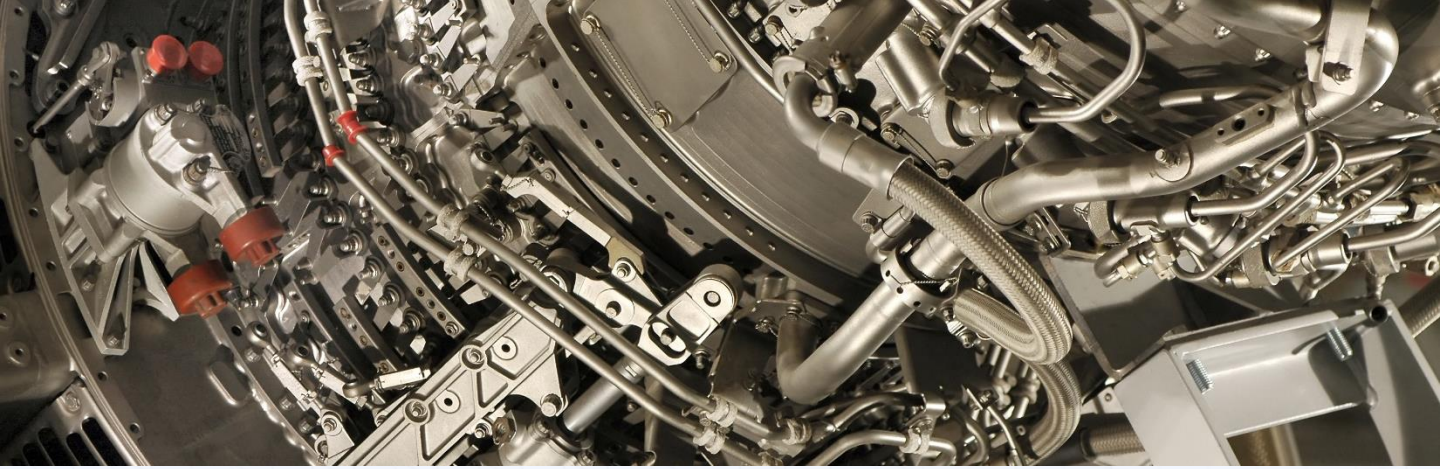




# AVIATION CASE STUDY

## JET ENGINE COMPRESSOR STATOR RUNNER PADS





HYCOMP™ COMPOSITES

## Compressor Stator Runner Pads

Mark Scoular November 2022

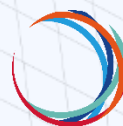
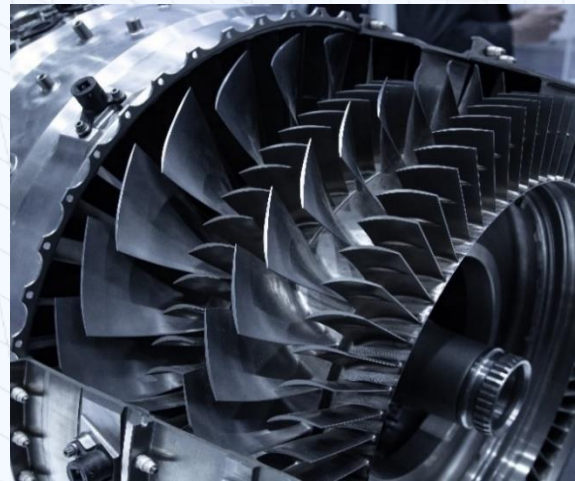
AVIATION HIGH TEMPERATURE FRICTION CONTROL WEAR & IMPACT RESISTANCE

### Environment

The compressor casing in a jet engine is an extremely valuable part that requires protection against blade tip abrasion, while aiming for the tightest distance between the case and blade tip for optimal compressor performance. Casings are made of high performing metals to sustain the mechanical conditional constraints as well as the harsh environment, debris and pollutant that can damage various parts. This critical area needs to avoid pollutant release in the downstream part of the jet engine.

### Challenge

Stator runner pads are wear parts with very tight tolerances and protect the compressor casing. They must consistently sustain high vibration, high temperature and high abrasion with excellent, micro-crack resistance in a challenging thermo-oxidating atmosphere. Furthermore, these parts must release very few particles on impact.



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## Solution

By using Hycomp™ H310® and H300 materials that have been co-molded, the compressor stator runner pads are able to combine high temperature and thermo-oxidative stability with excellent mechanical performance and impact resistance properties.

These carbon fiber composites provide excellent wear resistance and friction control, improving the lifetime of the compressor part. As an aviation composite solution, the runner pads also significantly improve weight.

## Precision parts that protect your compressor system



### Benefits

- Improvement of durability through wear reduction and friction control
- Weight reduction through the use of composite materials
- Customized combination of materials for cost optimization

### Specification

<b>Solution</b>	• Hycomp™ Carbon Fiber Composites
<b>Area</b>	• Compressor
<b>Material</b>	• H310® & H300
<b>Precision part</b>	• Co-molded runner pads
<b>Technical details</b>	• Media: Hot Air • Temperature: up to 320°C (608°F) • High wear resistance & low friction • Long lifetime expectancy • Tight tolerance



## Design Expertise & Tailor-made Solutions for Your Critical Applications

Omniseal Solutions™ is a global engineering leader with over 65 years of historical legacy, relentlessly dedicated to the design and manufacture of precision sealing and material solutions that protect critical applications in the most demanding environments and passionately driven to push *Beyond the Boundaries of Possible*.



### About the Author

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