

ATL Turbine Services

Case Study 1

Destructive Testing

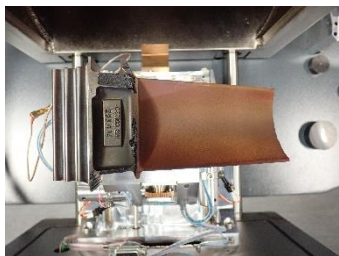
ATL was requested to assist a USA-based customer with several destructive tests they needed completed on gas turbine blades. These tests, which are taken on a sample of the overall set, allow them to understand whether the components in question can be repaired or need to be retired from service.

The Process

Initially, a visual inspection was completed to identify any defects or anomalies which may require further investigation during the wider assessment. This also involves recording of identification marks and other features.

Following this visual inspection, the component is marked up according to a pre-determined sectioning profile and then sectioning is carried out in multiple areas to ensure all the relevant locations are viewed.

Once the component has been sectioned, a material analysis is undertaken to confirm the substrate alloy type and coating composition. Microscopical examination to 1000x magnification is performed in both the unetched and etched conditions.



Hardness traverse is performed at approximately 6-8 mm intervals along the length of the aerofoil. Typical photomicrographs are taken showing the microstructure of the part. Additional photomicrographs are taken showing any areas of significance identified during the assessment.

Following the analysis, a comprehensive report is compiled and sent to the customer which details all the assessment findings and our recommendations on the ongoing use (or otherwise) of the parts.

Following this successful initial project and excellent feedback on our report quality and content, this customer is now sending ATL all their destructive test requirements.