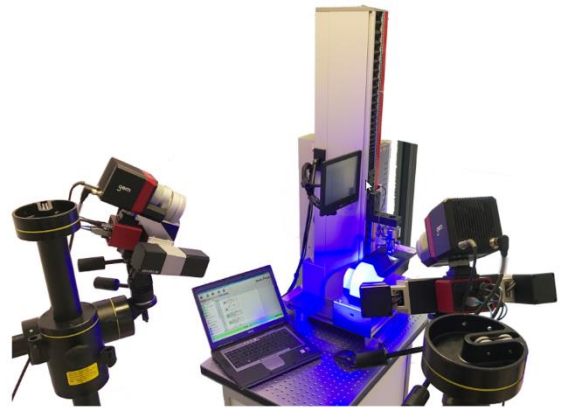


Problem overview

Large area measurements as well as complex geometrical components have always been a challenge to modelers and test engineers alike. Utilizing a multi-sensor optical metrology solution empowers the user to quickly generate a high resolution 3D result. ARAMIS easily allows for measurement results from multiple sensors to be combined and analyzed.

Test setup



Notes

Using a multi sensor optical metrology approach, large structures as well as complex geometries can be combined into a single project allowing for a real time full field measurement. This configuration was employed to measure the effects of thermal expansion on the geometries of a large jet engine. Nine ARAMIS sensors were triggered simultaneously, each positioned at angular intervals around the outer shroud, to create a detailed 3D model of the entire assembly as well as to capture the deformations due to thermal loading sustained during operation.

A similar setup was employed to measure the full field strains present in a complex geometry such as a large turbine blade. Two ARAMIS 3D sensors were employed to acquire data on both faces of the turbine blade during a torsional deflection test. The data was then combined to analyze the entire geometry throughout the test cycle in a single project.

Conclusion

Optical metrology solution, such as the ARAMIS digital image correlation technology, were proven to be effective for complex geometries requiring two or more sensors to capture complex strain fields as well as full field displacements.

For more information on this application, please contact Trillion Quality Systems, world leader in custom optical metrology application development.

Keywords: ARAMIS, PONTOS Live, TRITOP, multi-sensor

Figure 1

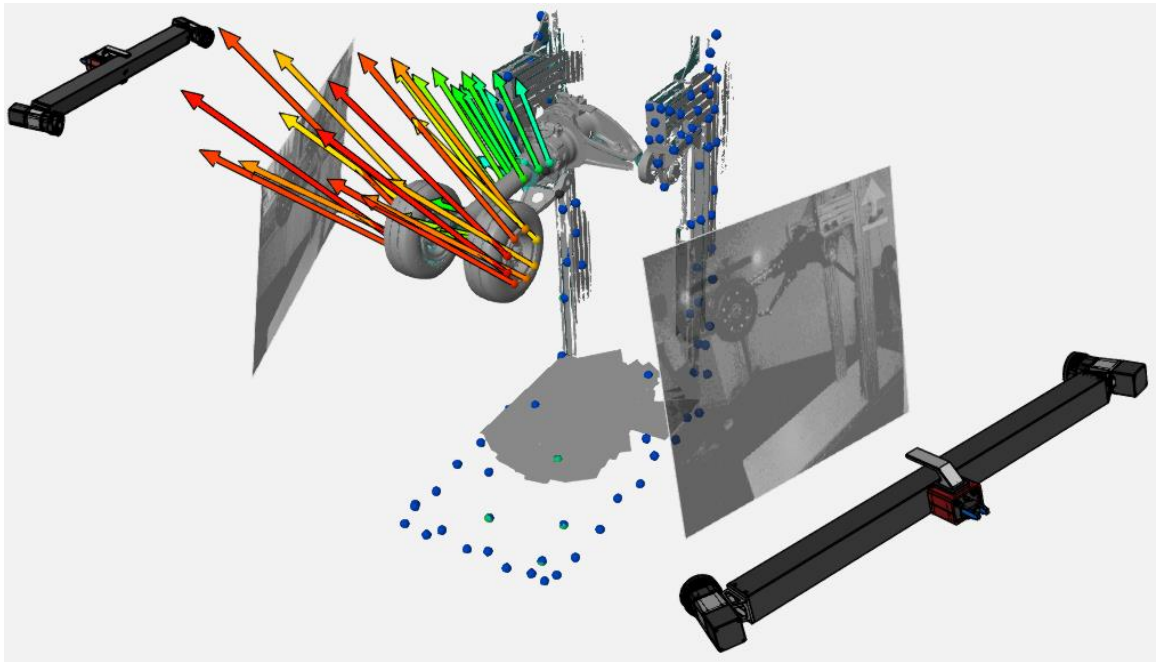


Figure 2

