



Gas Turbine Inlet Rake Assembly

Description

Design of an aero gas turbine inlet rake assembly, to measure intake pressure distortion during testing.

The design was driven by frequency requirements, to avoid flexural and torsional modes of vibration, as well as von Karman street vortex shedding.

This resulted in the rakes being bolted to the outer casing and supported by a centre body, to give additional stiffness to the structure.

The rakes measured both steady state and transient pressures, with two of the rakes being strain gauged for vibration monitoring purposes.

Specification Summary

- Velocity = Mach 0.4
- Ambient inlet temperature & pressure
- Steady state pressure measurement
- Kulite transient pressure measurement
- Centre-body design for acceptable vibration characteristics
- Two strain gauged rakes for vibration monitoring

Disciplines Used

- Conceptual & mechanical design
- Stress and vibration FEA
- Project management



Rake & Carrier Assembly