



# Redesign of Bearing Housing for Aero Engine Manufacturer



## CUSTOMER CHALLENGES

### Reduce Manufacturing Cost for Bearing Housing

A major aero-engine OEM (Original Equipment Manufacturer) had been facing high manufacturing cost for bearing housing due to its complex design and current manufacturing process. They wanted to redesign it.

The existing design consisted of 48 cast vanes, to be welded along with complex process of assembly. Hence, they wanted a capable engineering partner to redesign the aero engine bearing housing.

## SCOPE

- Redesign of aero engine bearing housing to reduce manufacturing cost

## SOLUTION

- New design proposed for aero engine bearing housing with single piece casting and machined new assembly parts.
- Proposed designs are checked for structural integrity and accommodate the design standards of OEM
- Design for manufacturing methods applied

## FEATURES

- Complete design solution reports including stress analysis, life and engineering drawings
- Design complexity reduced from 48 welded vanes to single casting
- Design with improved manufacturability
- Reduced aerodynamic wind steps in annulus have improved performance

## BENEFITS

- Met component redesign budgetary requirements
- Manufacturing cost reduced due to change in method of manufacture from fabrication to casting
- Weight reduction with new design
- Reduced aerodynamic wind steps in annulus have improved specific fuel consumption
- Complex design re-engineering support realized

## RESULTS

- 100%** On-time delivery of design, 3D models, stress reports and manufacturing drawings
- 50%** Reduction of manufacturing cost
- 23%** Reduction of component weight