

## Senior Structural Design and Analysis Chief Engineer

### RESPONSIBILITIES

- Manage a structural engineering team having the responsibilities of airframe structural design and analysis activities such as; producing airframe structural configuration layouts and detail designs including preliminary sizing/stress analysis, joint layouts, interface boundary definitions of parts and assemblies employing metallic and composite materials
- Approve CAD solid models and drawings of installations, assembly and detail components that meet all requirements such as structural integrity, interface boundaries, weight and cost targets
- Approve structural analysis reports including activities of DFEM or GFEM modeling, hand calculations, methods and principles in the framework of the project
- Manage the Interfaces with internal and external customers to present design development outputs, procurement and manufacturing to facilitate transition from design to production
- Manage the customer requirements and have the ultimate responsibility for the proof of compliance documents and models

### REQUIRED QUALIFICATIONS

- Graduation from Mechanical, Aircraft, Aerospace or Aeronautical Engineering departments
- Knowledge and experience in CAD design tools
- Deep knowledge in principles of CAE Structural Analysis tools and methods
- Deep knowledge, expertise and competence in overall aircraft/rotorcraft design in terms of architecture, integration and certification principles
- Knowledge and experience of airworthiness requirements relevant to aircraft and rotorcrafts, i.e. CS.2X
- Have good communication and negotiations skills
- Min. 10 years of experience in the relevant areas

### PREFERRED ADDITIONAL QUALIFICATIONS

- MSc or Phd in relevant areas
- Previous structural analysis and/or design experience with Design Task Responsibility of ATA 53 Chapter

## Gearbox Design Engineer

Following capabilities are expected in the field of aerospace gearbox design and manufacturing:

- Minimum Bachelor's Degree in Mechanical Engineering or Aerospace Engineering (Master's PhD Degree would be an asset)
- Knowledge of power transmission systems and components such as gears, bearings, shafts, splines etc. Working experience in the aerospace industry would be an asset
- Expertise in the creation of mechanical designs (3D/2D CAD designs), technical drawings and required internal documentation
- Good level knowledge of 3D CAD software such as CATIA or Siemens NX, knowledge of PLM would be an asset
- Knowledge of gearbox design software such as SMT MASTA, Kisssoft, Romax and Gleason tools would be an asset
- Good level knowledge of geometric dimensioning and tolerancing (GD&T),
- Good level of English

## Gearbox Manufacturing Engineer

Following capabilities are expected in the field of aerospace gearbox design and manufacturing:

- Detail machining operations of forging and complex casting components
- Rough machining (stock for grinding / special processes)
- Rough machine gear teeth
- Expertise in how to control distortion due to machining or free quench of heat treatment
- Expertise in how to manage the components with less stock
- Expertise in heat treatment processes (copper plating, masking removing copper, glass bead blasting)
- Expertise in surface improvement processes (shot peening and superfinishing)
- Finish machining (gear teeth, threads, journals, and all features)
- Details of lateral, plunge, and vertical grinding of tight tolerance components
- Mass finish and cleaning operations
- Evaluation and review of suppliers for special processes, tooling, and fixture
- Coordination and support of key suppliers for preparation for manufacturing

## Gearbox Assembly Engineer

Following capabilities are expected in the field of aerospace gearbox design and manufacturing:

- Ensuring proper installation of gears, bearings, packings, mating components, liners, and bushing
- Installation of Packings and Seals
  - Expertise in the consistent lubrication of packing (Boelube or Oil)
  - Expertise in uniform stretching
  - Expertise in that packing isn't twisted in groove
  - Expertise in that seal lips properly greased and installed to the desired depth
- Installation of Bearings
  - Ensure proper seating of the bearing with measurements
  - Details of using heat/cool or press
- Installation of Gears
  - Knowledge of gear shim procedure
  - Measurement of backlash and patterns
- Sealing and bonding application and cure
- Sufficient knowledge about preservation of gearboxes, corrosion protection and NDI
- Sufficient knowledge about how to use the consumables such as grease, coating, touch up.
- Sufficient knowledge about assembly area environmental conditions
- Guide assembly personnel for the requirements of the B/P

## Quality Engineer

Following capabilities are expected in the field of aerospace gearbox design and manufacturing:

- Dimensional inspections
  - Knowledge about especially (ASME Y.14.5, ASME B.46.1)
  - CMM (Gear Measurement System, Zeiss CMM with gear modules )
  - Bench inspection, functional gages
  
- Non-destructive inspections
  - Magnetic particle, penetrant, Barkhausen noise, and nital etch inspections for gear components
  - X-ray, penetrant, and eddy current inspections for housing components

## Material & Process Engineer

Following capabilities are expected in the field of aerospace gearbox design and manufacturing:

- Reviews and approves transmission system engineering drawings' for M&P perspective.
- Creates, maintains, interprets, and applies transmission system M&P specifications (casting, forging, copper plating, heat treatment, NDT, nital etching, and corrosion protections like anodizing, cadmium plating, Zn-Ni plating, passivation etc.)
- Ability to comprehend and apply EASA regulations, technical guidance and requirements for transmission design during certification and production phases
- Responsible for driving qualification effort band design allowable management, including the development of qualification specifications, written test plan, and reports
- Non-Destructive Testing Expertise in transmission component (Eddy Current, FPI, MPI, Barkhausen Noise Inspection, etc.)
- Expertise in the acceptance criteria of NDT
- Expertise in the concessions regarding special processes like nital etching, copper plating and NDT criteria
- Expertise in the qualification of helicopter transmission components on M&P aspects

## MRB Engineer

Following capabilities are expected in the field of aerospace gearbox design and manufacturing:

- Discrepancy detection of transmission components
- Discrepancy classification of transmission components
- Engineering concessions' evaluation about transmission components
- Disposition instructions of transmission components

Transmission discrepant components have features that do not conform to the drawing requirements and/or engineering design intent, whether it be because of damage, manufacturing errors, FOD.

- Gearbox Housing Castings
- Detail Level Housing
- Gears, Bearings, Shafts
- Stud Liner Assemblies
- Main Module Assembly

Some categories of discrepancies are:

- Nicks / Dents / Scratches
- Corrosion
- FOD
- Incorrect Marking
- Improper Finish / Coating
- False cut / Tool gouge
- Non-cleanup / Insufficient Stock, Surface Finish
- Casting Core Passage Anomalies
- No/Low Carburization
- NDI (Nondestructive Inspection) Failure
- Processing Issue
- Incorrect Order of operations
- Improper Hardware Installation / Assembly Material
- B/P Dimension