

Master Thesis – Balancing Mechanical Properties with Heat Treatment Selection (30 credits/20 weeks – 1 student)

This thesis work is initiated through GKN Aerospace Engine Systems with head quarter in Trollhättan, Sweden. The Trollhättan site employs approximately 2000 persons in research and technology, product development, manufacturing and product support of jet engines and engines for space vehicles. GKN Aerospace is deeply involved in developing and adapting additive manufacturing (AM) technologies for engine parts.

Project Background

Mechanical properties of precipitation hardened Ni based Alloys is dependent on the volume fraction of precipitates, grain size and solid solution strengthening. The mechanical property of components manufactured is dependent on heat treatment utilized for different material forms to balance all properties. The purpose of this project is to perform series of heat treatments within and outside AMS specifications and performing grain size, precipitate analysis and hardness measurements to estimate best property that could be achieved. Grain estimate will be performed by using MIPAR. Based on the results of this effort, limited mechanical tests will be performed to validate the selection.

Qualifications

- Master, **Mechanical engineering or Materials engineering or Physics , including courses on materials**
- Interest in Image analysis , metallography and simulation
- GKN would prefer if the student can perform most of the work on site at the R&T organization in Trollhättan

Apply by

By sending CV and personal letter to Prajina Bhattacharya (Prajina.Bhattacharya@gknaerospace.com)

Start spring 2022