

Master Thesis: Thermal analysis of manufacturing steps of forged Ti-6Al-4V aerospace components

Reference No.: MCL_244

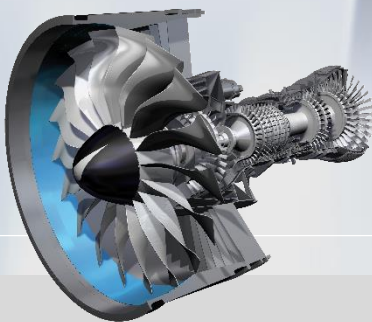
Materials Center Leoben (MCL) supports numerous companies in the production sector developing high-performance materials, manufacturing processes and products. MCL designs specific computer-aided technologies in order to accelerate innovation processes in manufacturing companies as well as to support the digitalization of the value chain and products. Our portfolio includes cooperative research and development projects with international and national partners from the production and research sectors as well as several consulting, laboratory and simulation services in materials science.

Aerospace components – Ti-6Al-4V – Heat Transfer – Experiment and Simulation

*These topics inspire you or you are already familiar with them?
Then you are the right person for this position!*

What are we looking for....

- Undergraduate student in engineering or science such as materials science, mechanical engineering, physics, etc.
- Interest in the fields of forging, heat treatment, thermal measurements, heat transfer, Python scripting and finite element simulation.
- Scientific curiosity, team skills, self-initiative.
- Good oral and written communication skills in English.



Your challenge...

- Literature review on thermal properties and heat transfer of Ti-6Al-4V components.
- Identification of a representative process route and component geometry for the production of forged Ti-6Al-4V aerospace parts in collaboration with a company partner.
- Definition and execution of a combined experimental and numerical procedure to determine the local heat transfer coefficients for the representative geometry and process route.
- Development of a numerical model for heat transfer simulation and, in combination with an existing mechanical model, execution of a sensitivity analysis for changes in final residual stresses from a systematic variation of heat transfer conditions.

Our offer

An employment with immediate start and a gross salary of € 3.600,- for six months.

*Please send your complete application documents by email.
We are looking forward to knowing you!*

bewerbung@mcl.at