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ECAPS

ECAPS AB is a leading manufacturer of spacecraft rocket engines that use environmentally benign propellant LMP-103S, which is a green and safer alternative to conventional toxic rocket propellants. ECAPS High Performance Green Propulsion (HPGP) is a world-class product manufactured entirely in Stockholm and exported world-wide. We are in the process of industrializing our HPGP technology and are increasing series production of thrusters (1 N). We are simultaneously developing rocket engines for higher thrust levels (5 N, 22 N, 50 N and 220 N) to expand our product range. To extend our team, we currently have positions vacant for:

Master Thesis – Additive Manufacturing for HPGP Rocket Engines

ECAPS AB

Project Description

The project intends to investigate the possibilities of additive manufacturing (AM) for parts and components used in ECAPS thrusters. To increase production throughput, the possible benefit of AM is of interest. The thruster comprises several different components which could potentially be manufactured as a single component.

The goal of the project is to, with structural optimization, define such a design. The final design must meet the dynamic and thermal requirements while still being lightweight and manufacturable.

The thesis will be organized through the following tasks:

1. Literature study on designing for additive manufacturing
2. Design of the component(s) with structural optimization
3. Dynamic and thermal analysis of the component(s)
4. Design evolution based on analysis results

The thesis will allow for the student to orient and direct the work in a feasible direction based on the results achieved. Thus, the student must have the ability to work independently but in continuous dialogue with other members of the team.

Project	Additive Manufacturing for HPGP Rocket Engines
Thesis level	Master's degree
Engineering area	Design, FEA
Time period	Q1-Q3 2023
Location	Solna
Contact	Wilhelm Dingertz, R&D Manager



Suitable Background

Mechanical design engineering and finite element analysis with an interest in rocket engines. Insight in structural (topology) optimization using FEM.

General Information:

ECAPS offers master thesis work with the intent that it is beneficial to the student and to the company. It shall allow the student to gain relevant work experience within the engineering field(s) applicable, while contributing with new knowledge and process improvements for the company.

How to Apply:

Please send your CV and personal letter, including first and last name, contact details (email, phone, address), attended college/university (incl. grades), a personal description and a motivation to your interest in the position to careers@bradford-ecaps.com with the subject "Application for master thesis".

We look forward to receiving your application! Please submit as soon as possible, at the latest by November 4th.

Applications are handled as they arrive.