



## **Absolicon – The obvious choice for your Master Thesis Project**

*Global warming is the biggest threat to society as we know it and the dominant cause for this is our consumption of fossil fuels. The hype around electric cars and solar cells suggests that most people are open to the idea of change towards more renewable options.*

*However, what is often overlooked is the fact that the energy usage for heating and cooling (thermal energy) equals that of electricity and transport combined<sup>1</sup>. You can help solve this part of the climate challenge!*

*Absolicon Solar Collectors is a stock market listed company in Härnösand with 25 employees working towards changing heat production in industry from fossil to solar. We sell the Absolicon T160 the most efficient solar concentrating collector in the world, producing heat up to 160°C. This makes it suitable for industrial process heat and district heating. Industrial process heat below 150°C constitutes roughly 7 % of the total energy demand, making it an immense market.*

*Absolicon's business plan is however not to sell solar collector fields across the globe. It is rather to sell production lines for licensed mass production of our solar collectors. The production line is robotized and capable of producing 50 MW (100 000 m<sup>2</sup>) solar collectors per year. For a short introduction of the production line, see the link below.*

<https://vimeo.com/absolicon>

## **Solar energy projects in an international environment**

Considering that we have developed our products from scratch, it should come as no surprise that we put a lot of effort into research and development. Our work up until today has given us the best solar collector in the world, and we strongly believe that continued efforts in this area is the key to staying one step ahead of our competitors. As a result, we have many active or planned R&D projects in which a master thesis project could be conducted.

As we are expanding our sales and marketing department rapidly, we also offer projects towards marketing and market analysis. We have a long history of supervising master thesis projects and have found that the best way of defining a project is in discussion with the student.

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## Methodology for evaluation of solar thermal collector field

### Background

In 2021 Absolicon Solar Collector AB built and commissioned the first phase of a 3000 m<sup>2</sup> solar thermal collector field connected to the district heating system at Höglätten, Härnösand. The solar thermal field is the largest system of its kind in Sweden. The purpose of the system is to deliver renewable solar thermal heat to the district heating, serve as a pilot for proof of concept in northern Sweden and as a research facility. Umeå University, as a research partner of Absolicon's for this project, has contracted RISE Research Institute of Sweden to assist with a performance evaluation of the solar collector field. RISE has a long experience with performance testing of individual solar collectors and the related evaluation methodologies.

### Scope

The scope of this thesis is to develop a test and evaluation methodology for the solar collector field, based upon the methodologies for performance testing of individual collectors.

RISE will provide technical expertise to support and lead the development of the evaluation methodology. Absolicon is responsible for the operation of the solar collector field, the data acquisition and implementation of performance monitoring and will host the student in their offices close to the solar thermal field during a large extent of the thesis project.

The academic supervision will be provided by Umeå University.

### Your Profile

We are looking for a student with a strong background in physics, energy engineering, data management and programming (VBA, Matlab or Python).

### Location & Duration

The thesis is planned for spring 2022. The main supervision is provided by Umeå University, while Absolicon as project owner will offer the day-to-day work context, and technical expertise will be provided online by RISE (from Borås). The student is required to work at Absolicon Härnösand office to have access to the plant and work closely with the technical department in implementing the findings. Absolicon will cover expenses related to living in Härnösand during the project period and the student will be part of a group of students in the Absolicon Academy programme.

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## Key Words

Solar Thermal, Evaluation, Data management, programming