

## **Master Thesis Electrical Machine Oil Cooling**

*Alvier Mechatronics is a young but growing start-up company and a reliable partner to leading global automotive and industrial companies. We provide engineering services and prototype solutions in electric drive systems. Alvier Mechatronics is a place where we have the freedom to choose and create our own story.*

### **About Thesis Work**

Thermal management is a key aspect when designing electrical machines in general, and even more so in automotive traction systems. Most electrical vehicles on the road today tend to use water jacket cooling and/or spray oil cooling of some kind. The spray oil cooling typically provides superior performance but comes with the drawbacks of increased cost, weight, and complexity due to the added components (pump, heat exchanger, filter).

The objective for this thesis work will be to evaluate the cooling performance of some novel concepts and compare them to water jacket cooling on an automotive traction electrical machine. The evaluation should preferably contain both simulations and measurements on a prototype of the novel concepts based on an existing electrical machine. A key metric will be the continuous current density for each cooling concept.

### **Your Profile**

You are a (or a plurality of) Master Student(s) in Engineering, you have at least basic knowledge of electrical machines, thermodynamics, fluid mechanics, measurement systems, and manufacturing methods. It will help to have some practical skills as the intention is to build and test.

Communication in English or Swedish is a requirement. The thesis shall be written in English.

### **Interested?**

Don't hesitate to apply! We look forward to your application!

### **Contact Person**

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