



Bachelor or Master Thesis

Sensitivity analysis of alternative cooling strategies for the production process of electric drives.

Initial Situation:

The ongoing electrification of the global vehicle fleet is leading to an increasing importance of electric traction drives. A central field of innovation for E-Drives is the stator production in Hairpin design, a construction made of solid electrical conductors. This technology is increasingly replacing conventional wire wound technologies. With the request for more powerful drives, the need for efficient cooling systems is becoming unavoidable. The integration of cooling systems into existing motor concepts requires the adaptation of both the product design and the manufacturing process. The sensitivity of the Hairpin process chain to alternative cooling strategies must be evaluated.

Your tasks:

Your task is the sensitivity analysis of alternative cooling strategies for electric motor production focusing the Hairpin technology as an example. This includes the analysis and evaluation of application potentials of currently known process and production technologies, the technological and economic trade-off between currently used and alternative cooling systems as well as the development of a technology roadmap for a possible industrialization.

The concrete task includes:

- Development of the state of the art of cooling strategies for traction drives
- Analysis and evaluation of the sensitivity of current process and production technologies of the Hairpin-Stator production for alternative cooling strategies
- Creation of a technology road map.

Your profile:

- Study of mechanical engineering, economic engineering, automotive engineering (or comparable)
- Interest in product and production engineering systems in the electric drive train
- Good knowledge of MS Office
- Independent and structured working
- Communication & teamwork skills
- Motivation and commitment
- Business fluent written and spoken English or German is mandatory

Offered:

- Extensive support
- Collaboration in an exciting and highly topical field of research
- Development of expert knowledge for future technologies in e-mobility
- Cooperation in a motivated team
- Delimited tasks, fast processing possible
- Possibility of jointly writing a paper
- Modern offices with free coffee and water

Are you interested?

Please send a current grade sheet, curriculum vitae and certificates together with a letter of motivation to the e-mail address below.

Your Contact at PEM:

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