

E-MOTOR SELECTION AND SIZING STRATEGIES FOR HIGH-PEAK LOAD APPLICATIONS IN MOBILE MACHINERY



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BACHELOR THESIS



MASTER THESIS



ADP



AERO SPACE ENG.



MECH. ENG.

➤ Future Automotive Systems

Motivation

Electrification of mobile working machines, such as excavators, wheel loaders and forestry machines, presents new challenges in electric motor selection and sizing, particularly in handling peak loads and overload conditions. This thesis topic examines the peak load capacity and overload-based sizing of electric motors used in mobile machinery. The findings of this thesis should provide state-of-the-art for optimizing the selection of electric motors for mobile working machines. These insights contribute to the broader development of efficient and durable electrified work machinery.

Tasks

- Literature review regarding electric motors, motor selection and sizing
- Evaluation of peak power requirements, thermal characteristics
- Implementation of state-of-the-art strategies and tools for motor selection
- Analysis of motor cooling techniques in sustaining temporary overload

Requirements

- Experience on electric motors
- Independent and structured work style

Condition

Conducted at Aalto University (travel and living allowance paid by Aalto University)

More info: www.aalto.fi/en/departement-of-energy-and-mechanical-engineering/fluid-power-laboratory



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