

Semester Project/ Bachelor's Thesis/ Master's Thesis

Grinding burn detection via Acoustic Emission

Motivation: The residual stress which occurs after the grinding burn can cause serious consequences including reticulate cracks and surface peeling, more than that it is related with the surface roughness resulting from the process. Monitoring the occurrence of grinding burn and the extension of the thermal damage is a topic of high interest for the industry. Even though it is a well-known phenomenon, the industry still lacks a plug-and-play and reliable system capable of detecting grinding burn for retrofitting grinding machines.

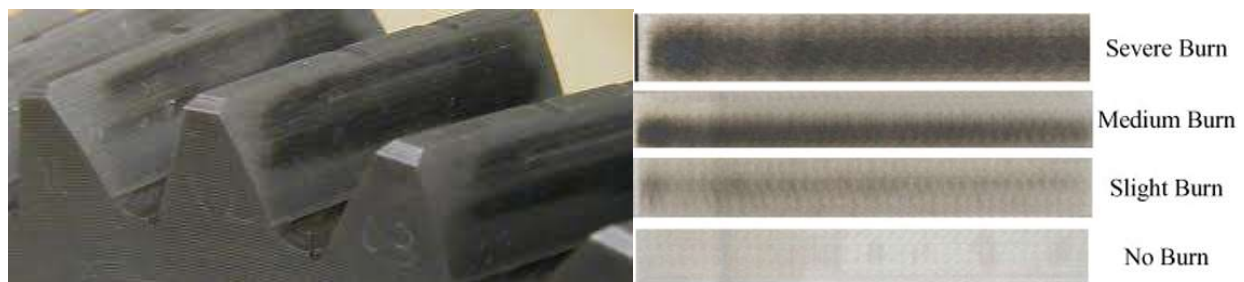


Figure 1 – Gear that suffered from grinding burn

Tasks:

- Set up and test an Acoustic Emission system able to predict grinding burn;
- Grinding tests inducing grinding burn to validate the monitoring system;
- X-ray measurement of the workpiece surface

Requirements: Signal analysis experience, Enthusiasm, hands-on work experience, and manufacturing knowledge.

Structure: 10% literature review, 50% experiments, 30% results analysis, 10% presentation and documentation

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