



Application of the Hall Effect for the Assessment of Thermal Damage

Motivation

During grinding the abrasive content of the process induces an increase in temperature in the cutting zone which, if not controlled, can generate the thermal damage called "grinding burn". This failure mode is generated at excessive temperature during the process, deteriorating surface properties. The temperature reached in the process defines the severity of the damage; from a certain temperature on, surface integrity is invariably affected

Objective

Due to the technological gap, the project aimed to investigate the proposal for a method of surface magnetic scanning through the Hall effect, without the use of component magnetization.

Approach

For the method investigation, a prototype was constructed; the influence of the prototype on the measurements was investigated and the method was validated with respect to the ability to detect grinding burn.

