Barkhausen Noise Emission in Case – Hardened Bearing Steels

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This paper deals with detection of surface burn after grinding operations on bearing rings made of case - hardened steels. The paper reports about Barkhausen noise technique employed for non destructive monitoring of grinding burn and discusses the main aspects affecting the Barkhausen noise emission such as thickness of heat affected zone, micro hardness, stress state, carbides, dislocation density and volume of retained austenite. Results of experiments indicate that the influence of stress state on Barkhausen noise is only minor whereas influence of structure features dominates. On the other hand, it is difficult to unwrap influence microstructure features contribution to the Barkhausen noise. For this reason their influence should be studied on the model surfaces undergoing the different regime of chemical and heat treatment.

Keywords: grinding burn, Barkhausen noise, bearings

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