

## Barkhausen Noise Emission of Surfaces Produced by Hard Milling Process

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This paper deals with influence of tool wear on surface integrity after hard turning expressed mainly through the Barkhausen noise responses. Grinding operations can be sometimes replaced by hard machining (hard turning and milling). Chip separation in hard turning differs from mechanism of chip separation during grinding. For this reason surface integrity expressed in variable terms differs. Surface integrity can be expressed in such term as surface roughness, shape deviations as well as characteristics such as residual stresses, structure transformations, and microhardness alteration. Being so, it can be beneficial to apply the suitable nondestructive surface testing techniques to obtain information about surface integrity expressed in complexity of this term. Nowadays, Barkhausen noise technique is widely used in a variety of industrial applications. This technique is sensitive to stress state as well as microstructure features. For this reason, Barkhausen noise emission is used in this study to reveal magnetic and stress anisotropy developed in a certain stage of tool wear. The paper also discusses very high BN responses associated with the specific aspects of produced surfaces.

**Keywords:** Barkhausen noise, Hard milling, Tool wear

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