Tool Geometry Influence on Surface Integrity of Machined Austenite Stainless Steel

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The goal of this contribution was to describe the microstructure and properties changes of difficult to cut materials after turning. Surface residual stresses, roughness, microstructure of AISI 304 type stainless steel were studied as a function of side rake angle γ_o. Residual stresses and phase composition of surface and sub-surface layers were determined using X-ray diffraction techniques. The presence of strain-induced martensite was investigated using Barkhausen noise, optical microscope, and microhardness measurement.

Keywords: Austenite Stainless Steel, Strain-induced Martensite, Tool Geometry, Residual Stresses, Roughness

Acknowledgement

This work was supported by the governmental funding of Technological Agency of Czech Republic – project number TA04020658.

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Paper number: M201685