Abrasive-free Ultrasonic Finishing of Metals

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The aim of the research was to compare a classical (turning) machining and an abrasive-free ultrasonic machining (bufo) at three different materials. The surface was evaluated on the basis of an Olympus LEXT 3100 measuring of a surface roughness and hardness HV5. An ultrasonic set I – 4 consisted of the ultrasonic generator, power output 630 W and working frequency 22 kHz ± 10%, was used for the research. Main results are: increasing of the hardness HV5 of the machined surface, lowering of the roughness parameters Ra at the application of the abrasive-free ultrasonic machining, lowering of the roughness parameters Rz was not statistically proved at the application of the abrasive-free ultrasonic machining. It is possible to say according to a visual observing of the steel sample surface that a corrosive resistance was increased at the application of the abrasive-free ultrasonic machining.

Keywords: Hardness, Machining, Microscopy, Surface Roughness, Testing

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