Influence of Cutting Fluid on Abrasive – Free Ultrasonic Finishing of Aluminium Alloy

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The aim of the research was to compare a classical (turning) machining and an abrasive-free ultrasonic machining (bufo) at aluminium alloy. 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. Three different cutting fluids containing nanoparticles were compared at the abrasive-free ultrasonic finishing. A rise of a hardness HV0.05 and HBW2.5/62.5 compared to the classical machining occurred at the application of the abrasive-free ultrasonic machining technology at the aluminium alloy by various cutting fluids containing nanoparticles. It is obvious from the results that a considerable fall of the surface roughness parameters Ra and Rz occurred at the application using the abrasive-free ultrasonic finishing.

Keywords: Hardness HV0.05, Hardness HBW2.5/62.5, Nano-powder, Surface Roughness, Ultrasound

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