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Definition of Optimal Parameters for Grinding Process Through Taguchi Methodology

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Abstract. In the Manufacture Industry, the grinding process has the goal to decrease the surface roughness of materials. This work aims to define the optimal parameters of grinding in 1018 Steel. Forty eight steel pieces were processed in eight combinations of the three parameters of interest. The interest variables were: the type of stone used for grinding, being used two: blue (AZ46 T7-J8-V32A) and violet (A-60-JV-T7) with grain sizes 46 and 60 μm , respectively; the coolant agent, which was used on only half of the samples, i.e. 24 pieces, and the grinding speed, at two levels: low and high. The steel pieces were processed in a Chevalier FSG – 1640AD grinding machine. The variables measured were roughness of the material and vibration of the grinding process. The Taguchi Design was of two levels and three factors. The results show that the best combination of parameters was violet stone - coolant – speed low, with a mean roughness of 0.68 μ .

Keywords: DOE Taguchi method, grinding process, roughness, 1018 Steel.