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DEVICE FOR SUPERFICIAL PLASTIC DEFORMATION BY MECHANICAL SHOCKS

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Abstract: Smoothing by mechanical shocks is a plastic deformation process. In order to reduce the surface roughness it is important to select the smoothing parameters. In present paper, is presented a device of plastic cold superficial deformation by mechanical shocks, imagined in the aim hardening of the superficial layer as well as the improvement of the quality of the surfaces. The presentation of the device is accompanied of experimental results and a surface roughness prediction model using artificial neutral network (ANN). The ANN model is developed to investigate the effects of smoothing conditions during processes of an OLC45 steel material. The experimental results were trained in an ANN program developed under specialized soft DTREG, and the results were compared with the experimental values. It was observed that the experimental results are harmonized with the ANN results.

Key words: Surface roughness, Mechanical shocks, Plastic deformation, smoothing, artificial neural network.