

OPTIMIZAREA PROCESULUI DE LEPUIRE A SUPRAFEȚELOR PRIN PROIECTARE ROBUSTĂ

ROBUST DESIGN BASED OPTIMISATION OF SURFACE LAPPING PROCESSES

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Abstract: Obtaining special quality surfaces as well as higher dimensional and geometrical precision entails deployment of surface smoothing processes, one of which is lapping. The lapping process is strongly influenced by a number of input parameters, the most important ones being machining speed, pressure, duration of the lap plate – abrasive paste – workpiece contact, kinematics of the machine-tool, etc. The paper presents a computer-based intelligent decision support system designed to achieve optimization of plane surface lapping by means of Taguchi’s method of arrays of experiments. The paper describes the steps to be followed for solving the issue of optimisation, the most important ones concerning defining the targeted objective, establishing the factors influencing the process and their respective levels, selection of the optimum array of experiments, processing of the results and determining the optimum configuration of the levels of the considered factors.

Keywords: Robust design, lapping, Taguchi’s methods, arrays of experiments.