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Development of Concurrent Engineering through the Application of Software Simulations of Metal Production Processing and Analysis of the Effects of Application

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Abstract : Concurrent engineering technologies are a modern concept in manufacturing engineering. One of the key goals in designing modern technological processes is further reduction of production costs, both in the prototype and the preparatory part, as well as during the serial production. Thanks to many segments of concurrent engineering, these goals can be accomplished much more easily. In this paper, we give an overview of the advantages of using modern software simulations in relation to the classical aspects of designing technological processes of metal deformation. Significant savings are achieved thanks to the electronic simulation and software detection of all possible irregularities in the functional-working regime of the technological process. In order for the expected results to be optimal, it is necessary that the input parameters are very objective and that they reliably represent the values of these parameters in real conditions. Since it is a metal deformation treatment here, the particularly important parameters are the coefficient of internal friction between the working material and the tools, as well as the parameters related to the flow curve of the processing material. The paper will give a presentation for the experimental determination of some of these parameters.

Keywords : production technologies, metal processing, software simulations, effects of application
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