

Improvement of Stamping by Rolling Processes of Pipe and Cylindrical Blades on Experimental Research

Andrii Shtuts^{1,a*}, Mykola Kolisnyk^{1,b}, Andrii Vydmysh^{1,c},
Oleksandr Voznyak^{1,d}, Serhii Baraban^{2,e}, Pavlo Kulakov^{3,g}

¹Department of Electrical Engineering Systems, Technologies and Automation on Agro-Industrial Complex, Vinnytsia National Agrarian University, 3 Soniachna street, Vinnitsia 21008, Ukraine

²Faculty for Infocommunications, Radioelectronics and Nanosystems, Vinnytsia National Technical University, 95 Khmelnytske shose street, Vinnytsia 21021, Ukraine

³Faculty for Computer Systems and Automation, Vinnytsia National Technical University, 95 Khmelnytske shose street, Vinnytsia 21021, Ukraine

*shtuts1989@gmail.com, ^bkolisnk30@gmail.com, ^candriivydmysh1966@gmail.com,
^daiex.voz1966@gmail.com, ^ebaraban.s.v@vntu.edu.ua, ^gkpl@vntu.edu.ua

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Abstract. During the experimental study, a pronounced beating and scaling of the side surface of the tubular, cylindrical blanks was recorded. It is established that cracks appear and develop in the central part of the lateral surface, i.e., it are destroyed. This fact confirms the claim that the destruction of tubular, cylindrical blanks of some materials begins on the side surface. It is established that the bases of analytical dependencies between the components of deformations describe the obtained results of the experimental study of SR tubular, cylindrical blanks within the error of the experimental data, which made it possible to construct a number of mathematical models for the purpose of farther study of the SDS and the method of their determination.

Introduction

Research methods and determination of limit value of the ratio of the height of the workpiece sample to its diameter regularities of deformation kinematics, formation of stress-deformed state of use of plasticity resource and loss of stability of billets and development on the basis of management of resource-saving processes of stamping by rolling (SR) [1-10].

Purpose. Establishment of real patterns of change of operating parameters of the universal vertical-boring machine 2A-135, and two installations prefix punching-1 (PSR-1), and (PSR-2), with mechanical control system of electromechanical drive.

Determination of the relative magnitudes of the difference between the results of theoretical and experimental studies [11, 12].

Methodology. Effective methods of experiment. The initial workpiece at SHO are segments of axisymmetric rolled metal, welding, stamping, obtained by the foundry method of the workpiece, as well as workpieces separated by a plastic offset from the pipe, strip or sheet. As shown by the analysis of the SR workpiece can be used in the production of a large number of parts such as flanges, bushings, bearing rings, gear couplings, workpieces precipitated by spherical punching, radiator flanges, radiator caps, workpieces by external flanges, products with bottoms and necks, flat round products, products with a rolling tool, stamping by rolling of plastic billets of a disk type, stamping of details difficult about the relief.

Improvement of processes of local rotational deformation is restrained due to the insufficiently developed computational apparatus of mechanics of formation, which is intended to provide: determination of kinematics of metal flux and estimation of influence on it of parameters of technological processes; determination of plasticity of metals; analysis of stress-strain state and accumulation of damage in the workpiece material; determining the effect of the amount of plasticity resource used on product performance.