UDC 621.798:676.272

**REMOVAL OF WASTE FROM DIE-CUT CARDBOARD BLANKS
(EXPERIMENTAL EVALUATION OF TECHNOLOGICAL LOAD)**

**S. V. Ternytskyi, N. M. Kandiak, V. Yu. Olishkevych**

*Ukrainian Academy of Printing,*

*19, Pid Holoskom St., Lviv, 79020, Ukraine*

*serhij86@gmail.com*

***Research Methodology.*** *In order to study the dependence of technological efforts of the destruction of connecting bridges during waste from the die-cut sheet of cardboard on various factors, we have used the method of system analysis, and the empirical studies (an experiment using strain gauging) have been done. For the study of the phenomena that arise during the destruction of connecting bridges, we have used an electron microscopy. For the detection of the dependence of the destroying force of connecting bridges on the cardboard thickness, we have used mathematical methods.*

***Results.*** *The method of research has been improved, which allows getting the technological destroying efforts of connecting bridges and change of this efforts as function of the vertical movement of the destructive tool; we have revealed the dependence of the destructive efforts on the thickness of the cardboard and suggested the empirical formulas for their determination; we have set the values of the destructive efforts of the connecting bridges and the vertical movement of the tool for several types of cardboard with different thicknesses; we have substantiated the appropriate movement of instruments and their mutual location.*

***Novelty.*** *It has been found out that the vertical movement of the tool, which causes the destruction of the connecting bridges, is much bigger than the thickness of the cardboard work piece, which indicates about the significant deformation of the cardboard. Using of mathematical methods, which are based on empirical studies, we have determined the dependence of the change of the destructive efforts of connecting bridges during waste from the die-cut sheet of cardboard on the thickness of the cardboard. It has been established that the width of the apertures of the matrix plywood plate affects the value of the destructive efforts.*

***Practical Significance.*** *The obtained results of researches will be useful: during solving practical tasks, in particular, during determining the total loads in the automatic machines, the torques and power consumption both in the platen section, and in the cutting press in general; for the improvement of the design of means for waste removal operation from die-cut cardboard blanks.*