UDC 655.28.022

**MANUFACTURING FLEXOGRAPHIC PRINTING PLATES WITH PRINTING ELEMENTS HEIGHT BELOW THE DIE LEVEL BY DIRECT LASER ENGRAVING**

**V. E. Nykyruy, V. Z. Mayik***Ukrainian Academy of Printing,  
19, Pid Holoskom St., Lviv, 79020, Ukraine  
nik\_volod@ukr.net*

***Research Methodology****. The method of flexographic printing plates production by direct laser engraving with the height of printing elements below the die level has been developed, which avoids excessive dot gain of small printing elements in the printing process.*

***Results.*** *The technology of different height of printing elements formation by the DLE method makes it possible to form the top of the printing elements at any given height below the level of the die. The printing elements whose height was below the level of the dies to the value up to 125 μm have been produced by the direct laser engraving of flexographic plates Böttcher Flex. The degree of the dot gain of printing elements in the case of different pressures on the plate during the printing process has been demonstrated. Flexometric and densitometric studies of imprints of printing elements with different height have been carry out, which show that the gradation tone wedge is uniform. Lowering the raster elements relative to the dies prevents excessive dot gain of small printing elements of the design under increased pressure om the plate to get uniform printing of dies.*

***Novelty.*** *The manufacturing technology of flexographic printing plates with the different height of printing elements by direct laser engraving has been suggested and tested.*

***Practical Significance****. It has been established that the manufacturing of printing elements with the height 25*–*125 microns lower than the die reduces the dot gain, graphic and gradation distortions, increases the uniformity of the imprints and the ink transfer of the printing elements.*