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RESEARCH OF THE PROCESS OF INDIVIDUAL SHOE LAST CORRECTIONS WITH THE HELP OF OVERLAYS

Purpose. Investigate the process of correcting the shape of the shoe last with individual overlays made by 3D printing.

Keywords: individual shoe last, overlays, 3D printing.

Setting objectives. Currently, a new method of obtaining parts - 3D-printing. Making shoes using 3D printing does not require large production capacity [1]. 3D-scanning allows non-contact measurements of the original object for automated acquisition and processing of its digital images in the form of virtual models, analysis of information about the surface of the object, determination of any specified surface parameters [2].

Research methods. We used Delcam Crispin using ShoeMaker, LastMaker, PowerShape modules, FDM method for 3D printing.

Research results. To achieve improved performance in the use of lasts, it is advisable to make them using 3D printing, examining the materials. Modern 3D printers have the ability to create models of varying complexity from different types of plastics [3], at an affordable cost and fast lead time.

5 types of plastic for 3D printing were used for the study: Elastan D70, PETg, PLA, ABS, PCTG. Printing parameters were selected according to the recommended technical characteristics for each material.

Next, the samples were tested for rupture on a test upgraded rupture machine 2167 P-50.

Elastan was selected from the researched materials, which satisfies the physical and mechanical characteristics for the production of the last cover and subsequent operation of the product. The photo of the printed overlay is presented in fig. 1.



Fig. 1. Individual last cover made by 3D printing

Conclusion. Adjustment of the form and the sizes of a block is carried out at the expense of use of overlays which consider deviations of the sizes and the form of a block and foot of the individual customer.

The end result of the last adjustment process is a digital copy of the prototype last, which can be used to model shoes in the 3-d-space of modern CAD.

References

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