

## **QUALITY ASSURANCE OF THE SURFACE LAYER OF PROCESSING PARTS BY VIBRATION HARDENING**

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The modern market economy requires the constant manufacture of new products with improved quality, high performance properties while striving for a low-cost price.

The operational properties largely depend on the state of the surface layer: physical and mechanical properties and micro geometry. This provision sets the task of improving the surface quality, thereby increasing the requirements for finishing operations.

The purpose of the work is to improve the quality of the sandwich structures by improving the parameters of the technological process and software.

The high load capacity and durability of surfaces are largely determined by the quality of the surface layer of the parts. At the same time, tensile residual stresses usually reduce fatigue strength and durability. Compressive residual stresses at moderate operating temperatures have a positive effect on the strength properties of surfaces.

One of the technological ways to improve the performance and durability of critical machine parts is surface hardening by plastic deformation methods.

The first step is to simulate the processing of various alloys and sandwich structures.

The next step will be to systematize the data and draw conclusions about the processing parameters on the quality of the processed surface to write a program that allows you to calculate the technological parameters for processing parts.

It was determined to carry out simulation modeling on sandwich structures of various designs using thermal heating factors, which will allow a more expanded understanding of the influence of extraneous factors on improving surface quality.

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