

## The Influence of the Technological Parameters of Rolling in the Helical Rollers and Longitudinal Wedge Mill on the Quality of Two-Phase Titanium Alloy

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**This article presents a new technology of obtaining the flat products with an ultrafine structure. The ultrafine-grained structure is obtained by using severe plastic deformation which is developed by the helical rollers. The stress-strain state (SSS) of the workpiece during rolling process in the helical rollers and longitudinal wedge mill is investigated in this scientific paper. The quantitative data has been obtained by the finite element method and MSC.SuperForge software; as well as the basic SSS distribution patterns, the temperature in simulating the rolling in the helical rollers and longitudinal wedge mill with different number of passes and the single reduction have been established. The rational technology of rolling the two-phase titanium alloys was developed and tested in the laboratory. The special attention is paid to analysis of the influence of the rolling conditions in the helical rollers and longitudinal wedge mill on the formation of VT6 titanium alloy microstructure.**

**Keywords:** the titanium alloys, the rolling, the stress-strain state, a numerical simulation, a single reduction.

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