Thermoelastic fields formed by ring laser beams at thermostrengthening

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The problem of estimation of temperature fields and fields of temperature stresses, arisen in the zone of a ring laser beam is solved. The calculation takes into account the power density distribution on the cut of a ring beam and the dependence of thermal and physical characteristics of the material (density, specific heat capacity, heat conductivity) on temperature.

The paper presents the comparative analysis of the laser heat treatment conditions of chrome patterns and ones without coat. The obtained results allow to optimize technological conditions and laser processing conditions of articles made of the U8 steel with a chrome-plated surface.