

Laser thermostrengthening of the high-pressure apparatus
dies used for synthesis of supersolid materials

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The exploitation of high-pressure apparatus used for synthesis of supersolid materials takes place in extreme conditions, that results in quick

wear of expensive details of the construction made of solid alloys. Therefore the question of the life extension of the of high-pressure apparatus dies is topical. For the solution of this problem we used the methods of surface laser processing.

The experimental examinations of the process of surface laser quench hardening were carried out on a laboratory model which included a laser head with a power supply unit and refrigerations (a pulsing solid laser on ND: YAG with a radiation wave $1,06 \mu m$ long), a drive control unit and a system of scanning of the workpiece.

The examinations allowed to define optimum technological conditions of laser quench hardening of the high-pressure apparatus dies, which ensure extension of their life.
