

## ABSTRACT

**Master's dissertation:** 103 pages, 32 figures, 17 tables, 56 references.

ELECTRIC – SPARK ALLOYING (ESA), SHOCK TREATMENT, SHOT-BLASTING STRENGTHING, DOPED LAYER, STEEL MARK 45, CHROMIUM, NICKEL

**Purpose of study:** to study of the impact of shock treatment and shot-blasting on the structure and microhardness of coatings on steel mark 45 obtained by electric-spark alloying in the Cr-Ni and Ni-Cr sequences.

**Methods:** microstructural, microhardness, gravimetric and X-ray.

**Subject of study:** surface layers of steel mark 45, obtained by electric-spark alloying with chromium and nickel after shock treatment and shot-blasting strengthening.

**Practical value:** The obtained results in the formation and established patterns of structure and properties of alloy layers after electric-spark alloying process and mechanical treatment (shock and shot-blasting treatment) in air can be used to extend the life of the machine parts and mechanisms operating under extreme loads.