1. **R.K. Mysik, A.V. Sulitsin, S.V. Brusnitsyn, V.V. Morgunov.** To the question of selection of alloy for the manufacture of contact wire for high-speed railways.

The article presents the requirements for contact wires for railways. The properties of various copper-based alloys for the manufacture of contact wires are analyzed. Based on the results of the analysis of literature data and the results of experiments, the alloys of the Cu-Mg system are recommended as the material for the manufacture of contact wire for high-speed railways.

Key words: contact wire, copper alloy, mechanical properties, unit electrical resistivity, recrystallization start temperature.

2. **M.V. Maisuradze, Yu.V. Yudin, A.A. Kuklina, A.A. Kirillova.** Metallurgical defects of engineering steels.

Defects of low-carbon engineering steels 18Kh2N4MA, 25Kh2N4MA, 25G2S2N2MA reducing the operational durability of the parts were studied. The most common defects of the metallurgical processing are: non-metallic inclusions, microstructure banding, internal cracks and pores. It has been established that the inclusion of titanium carbonitride significantly reduces the operational durability of heavily loaded parts.

Key words: engineering steel, defects, non-metallic inclusions, microstructure banding, cracks, heat treatment.

3. **A.N. Grachev, R.M. Kharchev.** Experience in obtaining thin-walled castings by gravity casting of aluminum alloys into molds obtained by 3D printing technology

The relevance of obtaining thin-walled castings of responsible purpose from aluminium alloys for the needs of aircraft industry is shown. The experience of production of casting «Turbocompressor housing» by gravitational pouring into single sand molds obtained using 3D printing technology according to Ink-Jet-process is described.

Key words: aircraft industry, castings from aluminum alloys, thin-walled castings, additive technologies, InkJet.

4. **G.N. Minenko.** Method for producing graphitized cast steel.

The effect of electric field treatment on graphitized steel is shown. The dependence of the strength and technological properties of steel on the processing time is revealed. Changes in the process of steel crystallization under the influence of electrophysical processing are described.

Key words: cast steel, electric field, carbon dissolution, steel graphitization

5. **Tkachenko S.S., Emelyanov V.O., Martynov K.V.** Manufacturing technology of artistic castings by vacuum-film forming (VPF).

The article highlights the problem of making art castings by the HMF method. A variant of molding with a false flask into vacuum-film forms is presented.

Key words: art casting, VPF, false flask, high relief, resource saving.