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Study of multilayer Au–Ru coating with barrier anti-diffusion sublayers of Co-W and Ni-Mo alloys

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A study of gold-ruthenium electroplating with technological anti-diffusion sublayers of Co-W and Ni-Mo alloys was carried out. The contact parts of serially produced MKA-14 reed switches served as prototypes. The influence of these technological sublayers on a number of basic characteristics of the coating, such as microhardness, porosity and roughness, was assessed. The change in the state of the surface of the contact part during the layer-by-layer formation of the coating was studied. Switching tests of batches of experimental magnetically controlled contacts MKA-14 with three types of gold-ruthenium contact coating were carried out in the modes of 50 mV, 5 μA, 50 Hz and 12 V, 0.25 A, 50 Hz. The dynamics of changes in their contact resistance during switching is analyzed.

Keywords: reed switch, gold-ruthenium coating, anti-diffusion layers, Co-W and Ni-Mo alloys, porosity, surface roughness, contact electrical resistance, switching tests.

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