

ION-PLASMA NITRIDING IN THE GLOW DISCHARGE OF PLASTICALLY DEFORMED HSS M2 - EFFECT ON THE WEAR RESISTANCE OF THE SURFACE*

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Ion-plasma nitriding is efficient and widely used technology that improves mechanical and performance properties of various structural materials [1, 2]. However, ion-plasma nitriding is a long process, which reduces its overall efficiency. Therefore, the intensification of ion nitriding seems a relevant task.

It is known that diffusion of atoms in metals is greatly influenced by various structural defects - with the structural defects increase, the diffusion rate in the metal increases [3]. However, along with structural defects, diffusion is also affected by the size of the metal grain: the finer the grain, the higher the diffusion rate [4, 5]. Therefore, to increase the diffusion rate in metals, methods of plastic deformation have recently become increasingly widespread.

This work is devoted to the study of the effect of plastic deformation during ion-plasma nitriding in the glow discharge on the wear resistance of the surface of HSS M2. The results of the study show that plastic deformation of the steel surface before ion-plasma nitriding increases the wear resistance of the surface of HSS M2 by 1.5 times compared to nitriding without magnetic field.

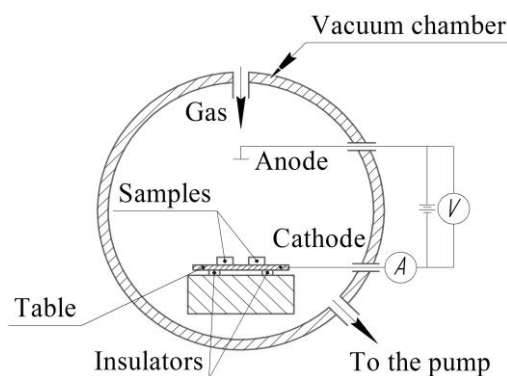


Fig.1. Process schemes ion-plasma nitriding in the glow discharge.

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