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## Costs Operating of Railway Braking Systems Due to the Influence of Hot Spots on the Brake Discs

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### Abstract

In the paper presents experimental studies the influence of the formation of the hot spots on a brake disc. The heat produced in the brake system often leads to the appearance of hot spots on the surfaces of friction pairs during rapid braking. Nature and extent of the intensity of the phenomenon depends greatly on the mechanical and thermal properties of these friction pair materials. The temperature distribution in the elements analyzed systems friction affects their thermal deformation, initiating the above phenomenon. Shown in the work of the results of tests and analyzes the formation of the hot bands and the hot spots on the brake discs used in high-speed railway vehicles, provided information on the temperature distribution on the surface.

One of the consequences of such a process is the increased wear and reduce the coefficient of friction. Measurements of the hardness of the hot bands and surface roughness of brake discs showed the effects of such phenomena on the change on the structure of the cast iron and steel discs materials. An increase the hardness of this hot area on the discs surface of may result in increased maintenance costs. The costs caused by for a more frequent lathing of the brake discs can occur. These changes also influences to reduce the coefficient of friction in the friction pair.

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