The Downhill Braked Railway Wheel Structural Analysis by Means of the ANSYS Multiphysics Program System Package

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Abstract: Article deals with the detection of reduced stress in a braked railway wheel based on thermal transient analysis on virtual models, because they influence the characteristics of the railway wheels. Structural analysis was performed by means of the ANSYS Multiphysics program system package. Thermal transient analysis deals with the detection of temperature fields which are result of braking by brake block. The applied heat flux represents the heat generated by friction of brake block. It is applied to the quarter model because of the acceleration calculation. This analysis simulates two braking with subsequent by cooling. Distribution of the equivalent stress was detected in the cross section railway wheel, at selected points. The input parameters were used from the thermal transient analysis. These equivalent stresses result due to thermal load.

Keywords: railway wheel, brake block, residual stress, transient thermal analysis

Acknowledgement

The work was supported by the Scientific Grant Agency of the Ministry of Education of the Slovak Republic and the Slovak Academy of Sciences in project No. 1/0347/12: “Railway wheel tread profile wear research under the rail vehicle in operation conditions simulation on the test bench”, project No. 1/0383/12: “The rail vehicle running properties research with the help of a computer simulation.” and the project No. APVV-0842-11: “Equivalent railway operation load simulator on the roller rig”.

References


