APPLICATIVE CAD/CAM METHODOLOGY FOR PARAMETERIZATION THE ROLLING SURFACE OF RAILWAY WHEELS

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During the operation of the rolling stock, the contact surfaces of the wheels and rail become worn. The wear can lead to unwanted changes of the wheel and rail profile and, consequently, to changes in the properties of the contact surfaces which can direct to instability in the movement of vehicles. Therefore, the maintenance and repair of the rolling stock are important for traffic safety and passenger comfort.

The paper presents the main types of defects that arise while rolling the wheels of the rail transport vehicles, some types of machine tools and cutting tools and recommended values of shaping or reshaping parameters. It is also presented a methodology of parametric representation of profiles and rolling surfaces using CAD techniques. There are analysed some profiles among those indicated in European norms in the field.

Keywords: railway wheel sets, wheel lathing, railway wheel profile, wheel wear

1. Introduction

The development in the field of the current railway transport focuses on the manufacture and operation of a new generation of vehicles characterized by increasing the reliability of the rolling stock, increasing the cruising speeds and achieving a high level of traffic safety [1], reducing the costs of design and manufacture/remanufacture, operation and maintenance, reducing the time and costs assigned to the repairs [2], compatibility with the rail infrastructure in the European Union countries etc.

The rolling profile of the railway vehicles wheels must fit within the geometrical characteristics governed by internal and international regulations [3],

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