

SUMMARIES

ARTICLES

Przemysław Brona, Iwona Wróbel: Improvement of Accessibility to Railway Transport – the In2Stempo Project

Many railway networks in Europe face a considerable problem to provide travellers with an easy and safe access from the platform to the train. The article outlines research results to date carried out within Work Package 8 “Improvement of Accessibility to Trains” of the In2Stempo project, concerning existing barriers connected with accessibility to rail transport. There are presented formal and legal issues, essential technical parameters of passenger transport and freight rolling stock. Moreover, the examples of currently used solutions facilitating to board on or alight from trains are described. The article also includes results of the survey for the In2Stempo project, conducted in October 2019 among organizations and associations representing persons with various disabilities. The aim of the research in question was to identify barriers and problems related to train accessibility in the European Union as well as to gather opinions from the persons with disabilities relating to travelling by train and train users’ opinions concerning the improvement in conditions of travelling.

Keywords: accessibility, railway infrastructure, railway transport, platform-train interface, disabled

Jacek Kukulski: Bench Test of Railway Friction Pair to Thermal Load

The article presents exemplary results of tests, carried out by the Author on the dynamometer test stand at the Railway Research Institute. The scope of tests was limited to testing of friction pairs subjected to thermal loads. It is a very interesting subject and still relevant due to the phenomena that occur. The basic technical parameters of the test stand are described. Furthermore, the course of the research and the obtained results of temperature measurements with thermocouples and a thermal imaging camera are outlined. Additionally, the measurement of the wear of friction materials during the test is presented, as well as the method and sample results of the residual stress tests using the ultrasonic method.

Keywords: dynamometer tests, friction pair, thermal load

Jarosław Moczarski: Laser Sensors in the Identification of Moving Objects

The article presents a method of observation and identification of rolling stock elements and transported goods. The use of laser range finders in the process of monitoring of moving objects and their subsequent recognition and

control of the position is described. The paper includes the results of the research carried out by the Author on the test stand of the Railway Research Institute, concerning the observation of objects of various shapes, sizes, surface textures and optical properties of materials. The results of experiments conducted with the use of a set of laser sensors and algorithms for creating digital models of tested objects with the use of neural networks are presented. The attention is paid to the effectiveness and scope of application of the adopted identification method, and the existing correlations and limitations are indicated.

Keywords: object identification, laser sensors, evaluation of the shape and position, recognition of rolling stock and loads

Małgorzata Ostromecka: Tests of SB-type Spring Clip

The article describes the requirements for rail spring clips examination performed at the Railway Research Institute in accordance to the applicable reference documents. Tests of the surface condition, geometrical measurements of clips, microstructure and decarburization examinations, hardness measurements, elasticity curve tests, clamping force measurement, assembly and fatigue strength tests are presented.

Keywords: SB-type spring clip, approval tests

Janusz Poliński: Vehicles for Diagnostics of Railway Infrastructure in Germany

The article describes historically the vehicles used to diagnose various permanent way parameters of the German railways. Single wagons, sets of wagons and measuring trains are presented. The focus is drawn to vehicles used to study the geometric layout of the track, the structure of the permanent way, and the traction network. Vehicles for diagnosing radio signals and noise occurring on the railway are also presented. The vehicles also include innovative ICE-S vehicles for monitoring the High-Speed Rail (kdp) line and determining the permissible speed on curves. Information is also provided on the implementation of new concepts for monitoring the railway by properly equipped trains, carrying out scheduled passenger transport on high-speed lines.

Keywords: rail transport, DB AG railways, infrastructure diagnostics, measurement wagons

Marek Sumiła, Monika Kochaniak: Climatic Tests of Railway Equipment

The article features essential climatic requirements for railway equipment and systems. Moreover, source standards relating to environmental testing are characterized. Two tests stands, located at the Signalling and Telecommunication Laboratory

of the Railway Research Institute, for climatic tests of railway equipment to be placed in service are described.

Keywords: approval tests, climate tests, environmental chamber

Iwona Wróbel: Directions of Changes in Polish Transport Infrastructure, with Particular Emphasis on Rail Transport – Part II

The article is the continuation of issues related to transport infrastructure in social and economic functioning of the state as well as directions of changes undertaken for the development of the Polish rail network, which is an element of the national transport system. There are described governmental programmes in reference to the line and facilities railway infrastructures that enable the increase in the quality of transport services and the extension of the network of connections, as well as increasing the transport accessibility of cities and regions. The implementation of projects covered by the Concept for the construction of the Central Transport Hub, the Railway Plus Programme and

the Railway Station Investments Programme will enable the creation of modern, efficient and effective transport connections to meet the demands of the 21st century.

Keywords: infrastructure, railway lines, transport system, development programs, infrastructure investments

RECENT EVENTS

Janusz Poliński: Digital Transformation of the Russian Railways (RŽD)

The article presents works preceding the development of digital transformation strategy of the Russian Railways. The areas which the digitalisation will cover are characterized. Furthermore, performance indicators of IT development planned to be achieved in 2025 are shown. The list of RŽD services, created by 2025, based on digital technology is included and attention is paid to the human factor necessary to implement the digitisation program.

Keywords: digital transformation, Russian Railways