SUMMARIES

ARTICLES

Andrzej Aniszewicz: Measurements of Profile Contours and Wheel Diameter of Wheelsets at Metrology Laboratory of Railway Research Institute

The article features two portable measurement instruments used by the Laboratory of Metrology of the Railway Research Institute, i.e. a wheel diameter measuring electronic "three points" gauge IDK-70/250-750/1260-B-BT type and a laser wheel profilometer IKP-5 type for the measuring of full profile scanning of wheel rolling surface of rolling stock. The scope of application, construction, parameters and principles to carry out reliable measurements have been presented. Exemplary objects (facilities) which were measured using the instruments in question have been shown. Attention was drawn to the necessity to accurately arrange the gauge and numerous measurements of the wheel diameter. A major advantage of these instruments is the possibility to perform the wheelset measurements when the vehicle is stationary without the necessity to dismantle the wheelset from the bogie. The instruments allow for an effective and fast geometrical dimensions measurement of tightly assembled railway wheelsets without their disassembly from the vehicle, not only in the maintenance facility of the Contractor but also in an open area (with no roof). Measurement results can be saved in an electronic version on a portable mini-computer PDA and then sent for analysis on a desktop computer.

Keywords: measurements, laser, wheelset, wear of wheelsets, wheel diameter

Renata Barcikowska: Research and Development and Investment Projects Carried out by Railway Research Institute

The article presents problems regarding acquiring funds intended for research and development and investment activities by the Railway Research Institute. The research methods used in the article include the analysis of source materials and a case study.

Keywords: research institutes, research funds, projects, research and development

Szymon Klemba: Role of Transport Forecasting in Making Decisions Regarding the Shaping of Railway Transport System

Decisions on shaping the transport system have an essential influence on the functioning of various sectors of the economy. Due to the nature of infrastructure investments, the adopted solutions must meet the forecast transport needs as much as possible. These predictions should be supported by research or simulations supporting the decision-making process. One of the tools are mathematical models of the transport system operation, used to forecast the demand for transport. Transport modelling may contribute to the choice of appropriate directions for the transport system development, however, without considering the context of the investment data, the output data from the model should not determine the choice of a specific solution.

Keywords: rail transport, modelling of transport systems

Marceli Lalik: "Design Speed" of Railway Vehicle

The article presents the analysis of regulations concerning the railway system interoperability within the European Union as well as documents resulting from these regulations' application in reference to the vehicle speed. The analysis reveals that the currently used "construction speed" should be replaced by the so called "design speed" in the Polish-language version of the documents that include technical parameters.

Keywords: railway transport, vehicle speed

Jarosław Moczarski: Test Stand Designed to Verify Methods of Identifying Moving Objects

The use of modern techniques of data acquisition and analysis enables the creation of new, innovative solutions in the area of rail transport systems. The ability to identify rolling stock elements and to control the location of transported loads also enables the detection of irregularities, prediction of potential threats and the implementation of procedures ensuring the transport process safety. In order to evaluate the possibility of identifying the contours of rolling stock and loads, with the use of sensors and measurement signal visualization systems available on the market, a test stand was built with point and line laser sensors and laser vision systems. The configuration of the test stand also allows conducting experiments with the use of analogue and digital sensors.

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

Artur Rojek, Marek Skrzyniarz: Energy Storage as a Device Supporting the Operation of a Traction Substation

An energy storage, which was placed in the short-circuit laboratory of the Railway Research Institute located in a traction substation in Mińsk Mazowiecki, was designed and built as part of the internal project. The following article describes the construction of the energy storage, its operating principle and conducted tests. The energy storage was tested in laboratory conditions and as a device supporting the operation of the traction substation and the section cabin.

Keywords: energy storage, electric traction supply system, energy recuperation

RECENT EVENTS

Janusz Poliński: European Year of Rail 2021 as Element of the European Green Deal

In December 2019, the European Commission published the Green Deal Strategy for the European Union. Its main aim is to become climate neutral by the year of 2050. Reaching the climate neutrality will be connected with the 90% reduction of pollution emission in the transport sector. The draft of the strategy provided that railway as the most ecological and energy efficient means of transport should play a crucial role to accelerate the speed of reducing the greenhouse gases emission. The European Commission developed a document proclaiming the year of 2021 the European Year of Rail. Its goal is to encourage and support efforts by the Union, the Member States, regional and local authorities and other organizations to increase the share of passenger and freight transport by rail. The proposals related to the European Year of Rail must be approved by EU governments and the European Parliament.

Keywords: European Green Deal, European Year of Rail

INFORMATION ON PUBLICATIONS

Janusz Poliński: Concept of Building a URT Rail Network in Europe

The article presents a fragment of a European Covid-19 Recovery Programme developed by Vienna Institute for International Economic Studies (*Wiener Institut für Internationale Wirtschaftsvergleiche)* relating to economy recovery after COVID-19 crisis. A positive impulse would be a transport initiative of a dedicated European high-speed rail network, the Ultra-Rapid-Train (URT). The suggested routes alignment of the network as well as costs connected with building railway lines in particular countries have been presented.

Keywords: rail transport, High-Speed Rail, URT Network

Janusz Poliński: Masterplan DB Cargo

The rules for the development of rail freight in Germany are set out in the document entitled "Rail Freight Masterplan ", developed in 2017 in Berlin by the Federal Ministry of Transport and Digital Infrastructure. The four parts of the document describe: the reasons for the development of the document, the objectives and mission statement of rail freight transport, the areas of action and milestones, and the main transport development plan completed with actions that need to be taken immediately. The document describes the necessary actions, based on innovative solutions and digitization, considering them as required measures to effectively compete on the transport market and create sustainable transport development with the participation of railways.

Keywords: Deutsche Bahn, Masterplan, Masterplan DB Cargo