



Politechnika Krakowska im. Tadeusza Kościuszki w Krakowie

INSTYTUT POJAZDÓW SZYNOWYCH

Cracow University of Technology, Institute of Rail Vehicles



(PL) 31-864 Kraków, Al. Jana Pawła II nr 37, tel/fax (+48 12) 6283311, WWW: m8.mech.pk.edu.pl, e-mail: m-8@institute.pk.edu.pl

EVALUATION
by a testing unit
authorized to carry tests required for obtaining
commissioning certificates



Pivot Socket Liner

Side Slide Liner

Krakow, November 2008



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Summary	The <i>Rail Vehicles Institute</i> of the <i>Cracow University of Technology</i> issues the hereby evaluation, acting on the authority of the Minister of Transportation and Construction Industry dated December 23, 2005 (Journal of Laws no 2, item 13) following: <ul style="list-style-type: none">– requirements specified in the regulation of the Minister of Infrastructure dated October 12, 2005 (Journal of Laws no 212, item 1772),– results of tests and analyses,– literary sources, in the matter of the socket lining and the side slide lining

Produced by	Team managed by Adam Tułeczki, PhD Eng. Kierownik Pracowni Jakości i Logistyki Transportu <i>[English: Transportation Quality and Logistics Unit Manager]</i>		
Signature		Date	20.11.2008
Unit Manager	Stanisław Guzowski, PhD Eng – PK Professor Director of Rail Vehicles Institute		
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1. Subject of Evaluation

The subject of the evaluation are socket linings and side slide linings made of flexible graphitamide, working with the side slide lining, designed for UIC Y25 freight wagon bogies, which have completed a supervised operation cycle. The operational tests used 412W type wagons owned by Przedsiębiorstwo Transportu Kolejowego i Gospodarki Kamieniem S.A. with its seat in Rybnik.

2. Objective of Evaluation

The evaluation objective is to evaluate socket linings and side slide linings after completing performance tests. The evaluation is part of the procedure of obtaining a permanent commissioning certificate for a component of railway vehicle according to the regulation of the Minister of Infrastructure dated October 12, 2005 (Journal of Laws no 212, item 1772).

3. Evaluation Subject Characteristics

The components of a railway vehicle which are subject of the evaluation, i.e.: socket lining and side slide lining are manufactured by BECKER Sp. z o.o. in Droginia k/Myślenic. The linings are made of conditioned polyamide composite, containing about 4 % of moisture, referred to as GRAFITAMID.

The mechanical properties and the chemical composition of GRAFITAMIDU meet the requirements which are specified in relevant standards.

The linings which have been supplied for tests conform to WTWiO No WSB/01/05 and WGS/01/05 and were assembled into Y25C type bogies, 5 coal wagons of 412W type, which are the property of Przedsiębiorstwo Transportu Kolejowego i Gospodarki Kamieniem S.A. with its seat in Rybnik.

4. Reference Documents

1. Regulation of the Minister of Infrastructure dated October 12, 2005, in the matter of the scope of tests required for obtaining commissioning certificates for types of structures and machines designed for railway traffic operation and types of railway vehicles (Journal of Laws, no 212, item 1772 dated 12.10.2005).
2. Regulation of the Minister of Transportation dated September 18, 2007, amending the regulation in the matter of the scope of tests required for obtaining commissioning certificates for types of structures and machines designed for railway traffic operation and types of railway vehicles (Journal of Laws, no 179, item 1276 dated 18.07.200r.)
3. List of domestic technical specifications and standards, conformance to which will ensure meeting the principal requirements regarding the interoperational function of the railway transportation. The announcement of the President of UTK [*English: the Office for Railway Transport*] dated August 8, 2005.
(Official Journal of the Ministry of Infrastructure No 9/2005, item 62).

5. Literary Sources, Test Documentation

1. Report on tests no RB/M83/02/08. Performance tests of a standard component of a railway vehicle. Pivot socket liner, side slide liner. Cracow, October 2008.
2. Contract on carrying performance tests of a standard component of a railway vehicle, concluded on March 20, 2006 in Rybnik.
3. Programme of tests carried as part of performance tests of a standard component of a railway vehicle. No: PBE – 01/2005. Cracow, December 2005.
4. Technical conditions of production and inspection. Pivot socket liner no
5. WGS/01/05. Cracow, 2005.
6. Technical conditions of production and inspection. Spring side slide liner no WSB/01/05. Cracow, 2005.
7. User evaluation issued by PCC Rail Rybnik S.A. ul. Kłokocińska 51, 44-251 Rybnik.
8. Commissioning certificate for a standard component of a railway vehicle no T/2006/0871/EL – side slide liner. Issued on the day of April 7, 2006, valid until May 31, 2007.



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9. Commissioning certificate for a standard component of a railway vehicle no T/2006/0870/EL – pivot socket liner. Issued on the day of April 7, 2006, valid until May 31, 2007.

6. Documentation Conformity Evaluation

The scope and the purpose of source materials provided by the Orderer corresponds to the conditions of issuing the evaluation by Instytut Pojazdów Szynowych Politechniki Krakowskiej [*English: the Rail Vehicles Institute of the Cracow University of Technology*] according to the regulation of the Minister of Infrastructure dated October 12, 2005 (Journal of Laws, no 212, item 1772).

7. Evaluation of socket linings and side slide linings

The tests and analyses which have been completed in the process of the supervised performance have allowed us to draw the following conclusions in the report no RB/M83/02/08, Cracow, September 2008:

1. The control carried at the time of inspections did not reveal damages or traces of wear that might affect the safety of railway traffic.
2. The tare wagon buffer impact tests were completed. The initial play of the pivot pin meets the maximum tolerance value, specified in the design documentation.
3. The results of load torque tests stay within the acceptable range of deviations..
4. In the opinion of the user, the pivot socket liners and side slide liners used in the 412W type wagons show highly positive characteristics of performance and wear and confirm that the design and engineering solutions applied properly contribute to the safety of traffic and environmental protection.

8. Summary

Following the analysis of the course of the supervised performance and the verification of the results of tests, taking into account the requirements specified in the regulation of the Minister of Infrastructure dated October 12, 2005 (Journal of Laws no 212, item 1772), we confirm that: the pivot socket liner for the UIC Y25 freight wagon bogies and the side slide liner for the UIC Y25 freight wagon bogies, meet the requirements for obtaining a permanent commissioning certificate of a standard component of a railway vehicle.

The analysis of the supervised performance showed that:

- a. the pivot socket liners and the side slide liners, made of graphitamide, used in Y25 bogies, ensure safe operation of railway traffic,
- b. the properties of the liners meet the requirements which are specified in the technical conditions and standardisation documents,
- c. the performance supervised within the PLK railway network confirmed that confirm that the pivot socket liners and side slide liners, made of graphitamide for UIC Y25 freight wagon bogies employ correct design solutions which are of critical importance as far as the railway traffic safety and operation are concerned.

Instytut Pojazdów Szynowych [*English: the Rail Vehicles Institute*] accepts full responsibility for the completed tests, testing methodology, tools and conformance to standards and regulations in the scope of the hereby subject.

On the basis of the completed tests as well as the supervised performance on the rail tracks of PLK, Instytut Pojazdów Szynowych Politechniki Krakowskiej [*English: the Rail Vehicles Institute of the Cracow University of Technology*] evaluates;

1. the pivot socket liner for UIC Y25 freight wagon bogies,
2. the side slide liner for UIC Y25 freight wagon bogies,

as safe and compliant with requirements that are necessary for obtaining a permanent commissioning certificate of a standard component of a railway vehicle – according to the regulation of the Minister of Infrastructure dated October 12, 2005.