

Vehicle type: <b>227M</b>	Component: <b>Wheel flange lubrication</b>	<b>14 May 2019 version 4</b>
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No.	Parameter	Requirement	Comments
<b>1.</b>	<b>Operating and climate conditions</b>		
1.1.	Installation of a wheel flange lubrication system	On the outside of the vehicle.	
1.2.	Operating speed of the vehicle	160 km/h	
1.3.	Parking conditions	Vehicle parked in an uncovered yard.	
1.4.	Environmental operating conditions for the wheel flange lubrication system	In the range of air temperature on the outside of the vehicle from -30 °C to +40 °C, and inside the vehicle from -30 °C to +50 °C. In the range of: <ul style="list-style-type: none"> <li>• altitude above the seal level - A1;</li> <li>• relative humidity of air - max. 90% at 20 °C (average yearly value of 75%);</li> </ul> and other environmental conditions in accordance with the PN-EN 50125-1 standard.	
<b>2.</b>	<b>General requirements</b>		
2.1.	Vehicle category	The vehicle (according to the TSI SRT sec. 4.2.3 and TSI LOC&PAS sec. 4.1.4) will be designed in the fire hazard category A.	
<b>3.</b>	<b>Equipment</b>		
3.1.	Installed equipment	Vehicle bogie.	
3.2.	Type and quantity	2 - lubricated wheel sets (first wheel sets in the vehicle).	
<b>4.</b>	<b>Functional and design requirements</b>		
4.1.	-	The lubricating system must be delivered together with electro-pneumatic valves but without the control system for those valves.	
4.2.	Operating voltage of the electro-pneumatic valves	24 V	
4.3.	Operating pressure of compressed air	6-8 bar	
4.4.	-	Lubricating system: the dosing tank and the feed pump must be located on supports welded to the frame of the bogie	
4.5.	-	The leading wheel sets must be lubricated (the first wheel sets in the vehicle)	

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4.6.	-	The wheel flange lubrication system must have a quantitative distributor able to feed the same quantity of lubricant under the same wheel	
4.7.	-	Installation of dosing devices (spray nozzles) must enable adjustment of the position of the nozzle when the wheel is worn out	
<b>5.</b>	<b>Other requirements</b>		
5.1.	Fire safety requirements	-	
5.1.1.	Operating category	Category 2 (OC2) according to the PN-EN 45545-1 standard.	
5.1.2.	Design category	Category N according to the PN-EN 45545-1 standard.	
5.1.3.	Hazard level	HL2 according to the PN-EN 45545-2 standard.	
5.1.4.	Material requirements	In accordance with the requirements set forth in the TIS LOC&PAS sec. 4.2.10.2 and of the PN-EN 45545-2 standard.	V3
5.1.5.	Certificates	The equipment to be used must have appropriate fire-resistance certificates in accordance with the PN-EN 45545-2 standard.	V3
5.2.	Electric equipment	According to the PN-EN 45545-5 standard	
<b>6.</b>	<b>Documentation</b>		
6.1.	-	Assembly instruction for the system and the different assemblies, assembly drawings.	Required within two weeks after signing of the contract. V3
6.2.	-	2D and 3D drawings of different parts of the system, an electric diagram	Required within two weeks after signing of the contract. V3
6.3.	-	Technical specification.	The bidder is required to enclose it with the proposal.
6.4.	-	Operation and Maintenance Documentation conforming to the announcement of the Minister of Infrastructure and Construction	The Contractor will deliver it with the

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		<p>Industry of 27 January 2016 concerning announcement of a consolidated text of the Regulation of the Minister of Infrastructure on the general technical conditions of operation of railroad vehicles (Journal of Laws, item 226), which must contain:</p> <ul style="list-style-type: none"> <li>• identification of intended use;</li> <li>• technical data;</li> <li>• a description of the design and principles of operation;</li> <li>• an operating instruction (preparation of the instruction according to the PN-EN 82079-1 standard);</li> <li>• explanatory drawings;</li> <li>• requirements related to use and safety of operation;</li> <li>• guidelines concerning service and maintenance;</li> <li>• a description of the methods for checking the technical condition and a list of parameters;</li> <li>• a description of characteristic defects and methods of their elimination;</li> <li>• a list of spare parts;</li> <li>• the principles of recycling. The specific scope of the data is to be discussed during</li> </ul>	<p>first delivery of the object of the contract</p> <p style="text-align: right; color: red;">V3</p>

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		the technical dialog.	
6.5.	-	Illustrated list of spare parts.	The Contractor will deliver it with the first delivery of the object of the contract
6.6.	-	Technical conditions for performance and acceptance of the object of delivery of a subassembly installed in the vehicle.	The Contractor will deliver it within 3 months after signing the contract.
6.7.		Data for the RAMS/LCC analysis, as a minimum: FIT. (failure in time), MTTR (mean time to repair), MTBF (mean time before failure) according to the PN-EN 50126-1 standard, costs of technical maintenance for levels P1 to P5. The specific scope of the data is to be discussed during the technical consultations after the bidder has been selected.	The Contractor will deliver it within 3 months after signing the contract for delivery. <b>V3</b>
<b>7.</b>	<b>Acceptance and quality</b>		
7.1.	Declaration of conformity	Declaration of conformity containing a list of standards and regulations - in accordance with the Act on systems for evaluation of conformity and market supervision (Journal of Laws of 2017, item 1398), as amended;	The Contractor will deliver it with the first delivery of the object of the contract <b>V3</b>
7.2.	Equipment acceptance certificates	Acceptance certificates 3.1 according to the PN-EN 10204 standard.	The Contractor will deliver it with the first delivery of the object of the contract <b>V3</b>

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7.3.	Approval for use in the railroad sector	A document confirming suitability for use in the railroad sector issued by an accredited evaluating body - conforming to the EN ISO/IEC 17065 standard.	Preferred  The Contractor will deliver it with the first delivery of the object of the contract <b>V3</b>
7.4.	Certificate of compliance with standards and regulations	Declaration of the bidder concerning compliance with standards and regulations required in this document.	The bidder is required to enclose it with the proposal. <b>V3</b>
7.5.	Fire-resistance certificates	Certificates of compliance with the EN 45545-2 standard.	The Contractor will deliver it with the first delivery of the object of the contract
<b>8</b>	<b>Standards and documents *1), *2), *3)</b>		<b>V4</b>
8.1.	PN-EN 10204	Requirements concerning inspection documents.	
8.2.	PN-EN 45545-1 PN-EN 45545-2 PN-EN 45545-5 TSI LOC&PAS	Fire safety requirements concerning general provisions and used materials.	<b>V3</b>
8.3.	PN-EN 15427+A1	Requirements concerning mating of the wheel and the rail, taking into account lubrication of the flange	
8.4.	TSI SRT	Requirements concerning safety in railroad tunnels.	
8.5.	PN-EN 50125-1	Requirements concerning operating and climate conditions.	
8.6.	PN-EN 50126-1	Specification and demonstration of reliability, availability, maintainability, and safety (RAMS)	<b>V3</b>
8.7.	PN-EN 82079-1	Drafting of an operating instruction.	
8.8.	EN ISO/IEC 17065	Regulations concerning evaluation of conformity of the requirement for product certification bodies.	

**Comments:**



Program Badań Stosowanych



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- \*1) In matters not specified in these requirements, provisions of the aforementioned standards apply.
  - \*2) The editions of the standards valid as of the date of submission of bids for subassemblies.
  - \*3) The ordering party allows for presentation of relevant documents that confirm compliance with standards and regulations equivalent to those listed; however, the Contractor is required to document the equivalence of such standards and regulations at its own expense with confirmation of existence of such equivalence by an accredited evaluating body with a relevant scope of competence.
- Evaluation based on enclosed copies of confirming documents. **V4**