

Sanding systems trams



 **Tribotec**

Central lubrication / Hydraulics

Systems for Rail vehicles

Sanding system for trams PZKV

Difficult operating conditions of rail transport such as moisture, fallen leaves, snow and ice on rails have a great influence on safety traffic and braking systems of all vehicles. The special systems for operating the friction between a wheel and rail have become a standard part of all modern rail vehicles. This sanding system ensures uniform and controlled sand spread between the wheel and rail so it positively influences the vehicle's operating power and its efficiency while both braking and moving off.

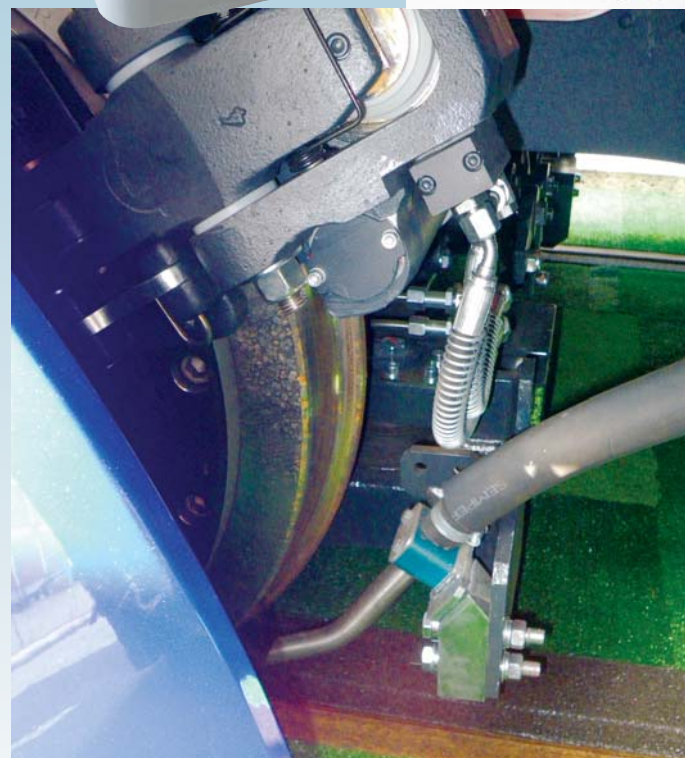
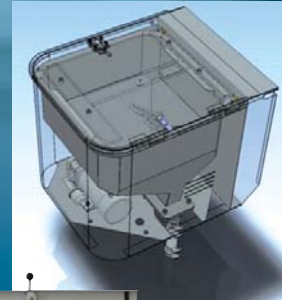
TRIBOTEC produces sanding systems as effective and economic solutions for wide range of applications of the whole spectrum of rail vehicles and type of rails.

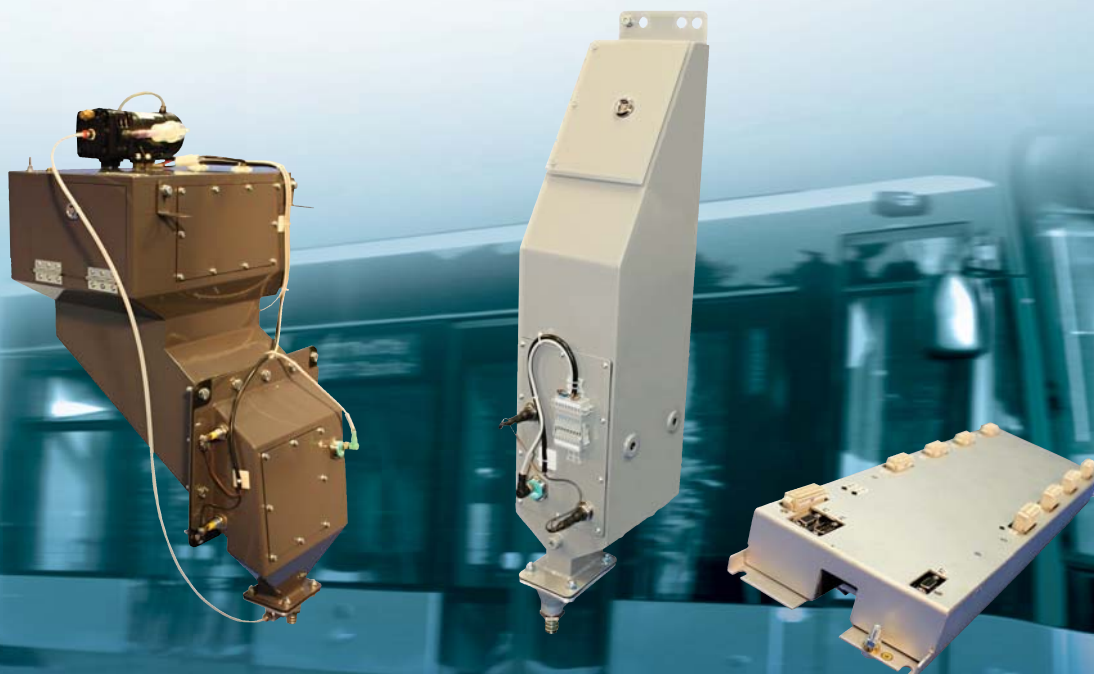


The sanding equipment for railway vehicles PZKV is a modern ecological system whose pneumatic principle ensures operational reliability. System PZKV is designed for trams that are not equipped with pressure air distribution. The pneumatic dispenser reduces sand consumption when compared to other mechanical systems.

The PZKV system is capable of operation in a wide range of weather conditions and in the difficult external operational environment. Sand boxes have their own heating to eliminate sand moisture after its replenishment. Sand nozzles are also equipped with heating to eliminate their freezing. Sand nozzles exhibit high mechanical resistance; they are fixed in special holders, simultaneously ensuring easy setting in three degrees of freedom, which is highly user friendly during reconfiguration after vehicle wheel profiling.

Sanding systems PZKV are manufactured in a series of optional constructions for placing under the vehicle seats, into the walls, floors and other areas of the vehicle interior. They are fully conformable with installation in all types of tram, including the fully low-floor vehicles. The build-in dimensions of the system are minimized, sand box shapes and dimensions are usually designed for a particular vehicle, however, with utilization of standardized modular elements, by which means the favourable price is achieved also for customized (project) constructions. Materials ensuring low weight are utilized in the construction of the system and simultaneously, special materials for noise elimination and possibly for heat insulation are utilized as well. The systems are usually provided also in aluminium and stainless steel. As standard, the system is equipped with sensors for electrical signalling for monitoring of the sand level in the sand box. The sand filler flaps are manufactured in several versions so as to cover multiple types of rail vehicle and simultaneously to facilitate the sand filling systems widely represented in the market.





Sanding system PZKV is delivered with open system control architecture. The system is operated and controlled from the vehicle's master control system, usually with engagement of its own control unit as an intermediary unit that controls the operation of individual sanding devices and provides a feedback and control for the vehicle's master control system.

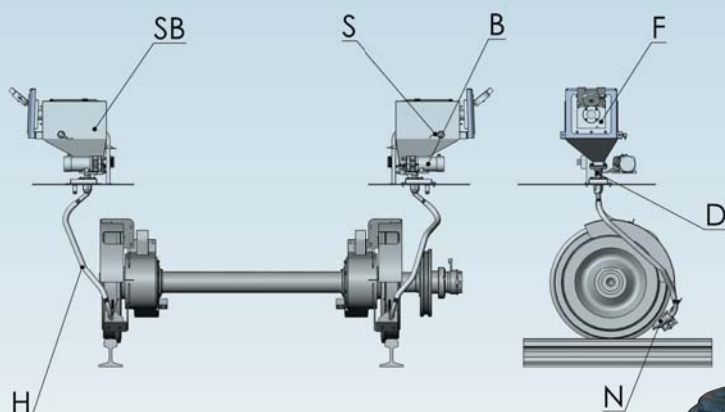
Benefits

Basic technical data

Supply voltage	24 V DC +25 % -30 %
Maximum current	10 A
Working pressure	6 ÷ 10 bar
Amount of dispensed sand	450 ÷ 1 300 g/30s
Sand box capacity	according to design, 15 ÷ 30 liters
Weight	according to design, 12 ÷ 40 kg
Service life	30 years
Noise level	50 dB(A) + 10 dB(A)
Working environment temperature	-35 °C až +40 °C

It is recommended to use dust-free silica sand from 0.7 to 2.0 mm grit size. Other sand quality must be tested before a project is designed. Using a different type of sand might be partially solved by an adjustment of the system during commissioning.

- Significant reduction of the sand consumption, connected with cost savings for purchasing and cleaning the sand and maintaining sand containers at trams terminal stops
- Significant reduction of dust pollution in urban areas
- Traffic safety increase
- Continuous flow of sand under the wheel the sanding periods
- Adjusting amount of dosing sand as necessary according to the rails and tram's line
- Drying the sand inside the Sand box and heating the Sand nozzles
- Manual or semi-automatic refilling of sand into the Sand box by filling pistols
- Signalling of sand level inside the Sand box
- Modular design, minimizing installation space, low weight
- Low sonic pollution enables the installation inside the passenger area
- High reliability and service life



- Legend:
- B Blower
 - D Dispenser unit
 - N Nozzle with heating
 - F Filling lid
 - SB Sand box
 - S Sensor of MIN level
 - H Hose





TRIBOTEC is a Czech manufacturing company concentrating on deliveries of central lubrication systems, lubrication technology, hydraulic systems and special systems for rail transport.

The company produces central lubrication systems, multi-line, progressive, two-line and single-line systems for lube oils and plastic lubricants up to the consistency NLGI-3, systems for oil re-circulation lubrication and oil cooling, spray lubrication systems with application for plastic lubricants and oils, oil-air lubricating systems, mobile and portable lubricating pumps. In hydraulic systems, the company concentrates on production of hydraulic aggregates in the customer's design and a complex solution incorporating the project, production and delivery of the hydraulic systems, including special hydraulic systems for rail vehicles and rail transport.

As special products for railways TRIBOTEC produces systems of Wheel flange lubrication for trams and locomotives, Sanding systems for trams and locomotives and Stationary track lubrication for lubricating rail curves.

Both sale and manufacture activities are based on a mutual cooperation and on processing each individual project according to the customer's demands. The company provides installations and assemblies in the customer's destination, including commissioning and optimizing the operation, with after-sales service, preventive maintenance and consultations. Its products are designed as a building kit, which enables wide modifications according to the specific technical data without increasing the project's costs. The company designs all drawings in 3D modelling and has established SW sharing the customer's documentation in order to implement the models directly in their documentations.

All business activities are in conformity with the quality management system ISO 9001:2008



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