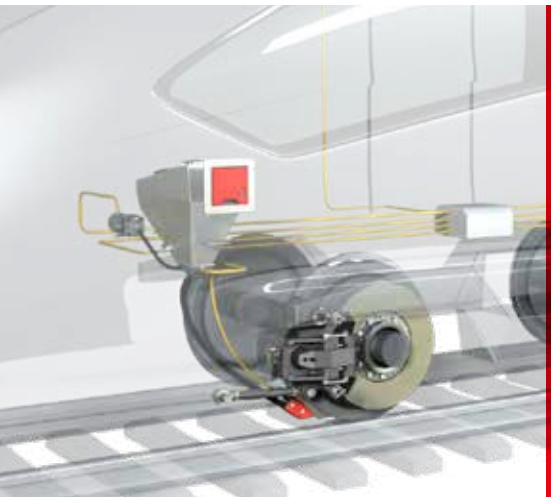


GripMaster®

Sanding System for Greater Safety on the Rail

HANNING & KAHL

GripMaster®

Sanding System for Greater Safety on the Rail

In rail vehicles, sanding systems are safety-relevant systems which ensure safe braking and acceleration. They increase the contraction between wheel and rail in order to improve the friction ratio. Working closely together with manufacturers and operators, we develop innovative and reliable sanding systems with modular structure and customized design. From project planning to design engineering, development to manufacture and sales, users get everything from one source.

The absence of moving components in contact with abrasive sand is a major technical advantage. Compact design and low LCC costs are decisive arguments for users.

GripMaster®-Compontents

1. Sand box

As a system supplier, HANNING & KAHL supplies sand boxes in compliance with customer specifications and dimensional parameters. The sand boxes are welded high-grade, steel or cast aluminium constructions. Vehicles can be filled from the outside through filler flaps and also from the inside. The filler flaps are freely selectable to allow filling by hand or sand gun. Level switches signal sand-fill level. A drying function can also be installed.

Sand quantities can be accurately dispensed.

2. Sanding outlet

HANNING & KAHL's sanding system works on the ejector principle. In the dispensing unit underneath the sand box, sand is sucked out of the box and accelerated by the conveying stream. Air and sand come together and are guided via the conveying hose to their destination – the wheel-rail contact.

The downwardly inclined outlet direction of the dispensing unit offers a high degree of flexibility for individual routing of the conveying hoses.

The oil-free rotary vane compressor ensures rapid pressure build-up.

3. Compressor

The compressor was developed for application in sanding systems and works oil-free on the vane or rotary vane principle. Major advantages are faster pressure build-up and consistent volume flow. This means short reaction times and no additional pressure vessels. This saves space in the vehicle, and operators do not have to perform cost-intensive and time-consuming pressure-vessel maintenance. This saves space in the vehicle, and operators do not have to perform cost-intensive and time-consuming pressure vessel maintenance.

4. Sanding nozzle

The height-adjustable sanding nozzle enables targeted and efficient sand dispensation. The compact aluminium construction protects against water ingress and ensures even distribution of the sand grains on the rail. For extreme climatic conditions, the sanding nozzle can be provided with heating. The self-regulating heating cartridges accelerate drying and prevent ice forming on the nozzle.

GripMaster®

Reduce Operating Costs, Enhance Operating Safety

The system does not depend on pressure-tight sand boxes.

Self-regulating heating cartridges prevent ice forming on the sand nozzles.

Technical Data Sanding System	
Sand mass flow variable	up to 1,200 g/min
Reaction time with a meter conveying distance	< 500 ms
Deployment temperature range	-30 to +50 °C
Sand box volume	Customer-specific

The characteristics of the system bring operators many advantages

Sand quantities can be accurately dispensed.	Reduced sand consumption
The oil-free rotary vane compressor ensures rapid pressure build-up.	Shorter reaction time
Pneumatic cleaning procedure after every use of the system.	Increased operational reliability
No contact between movable parts and abrasive sand.	Less wear and maintenance
Self-regulating heating cartridges prevent ice forming on the sand nozzles.	Greater system availability
Level switches monitor and signal fill level.	Improved sand management
The system does not depend on pressure-tight sand boxes.	No need for leak tests

Further options

- Continuous measurement of the remaining sand volume by ultrasonic level sensor in the sand box.
- Central pneumatic supply throughout the rail vehicle by replacement of the compressor with a pneumatic unit.
- Control of the sand quantity depending on vehicle speed by pulse-width-modulated operation of the valves in the dispensing units*
- Diagnosis and communication per CAN, MVB or Ethernet bus.*

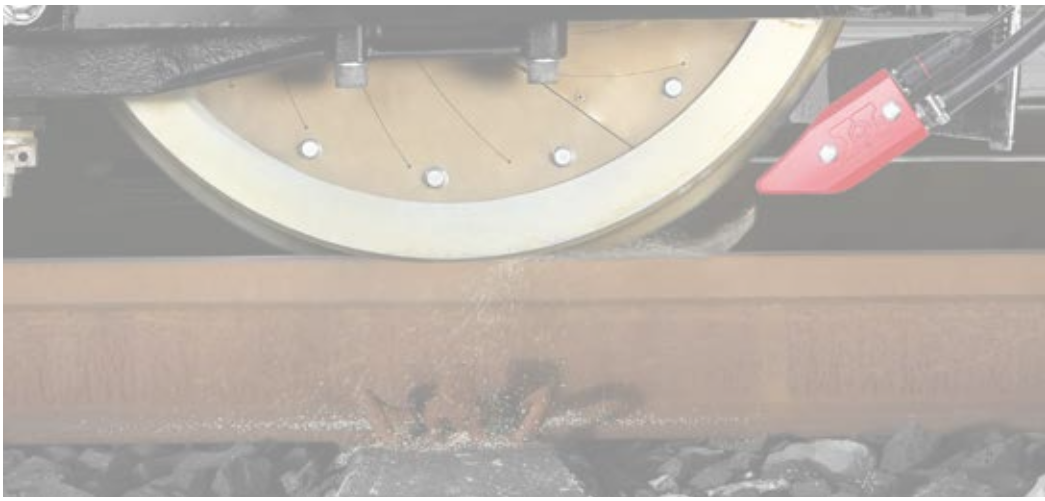
** in conjunction with the HANNING & KAHL control unit SCU*

Safety on the Rail

GripMaster®, HANNING & KAHL's sanding system is the outcome of a successful symbiosis of efficient series production and individual design, leading to technically-targeted and reliable solutions, and rapid returns for operators

You, too, will be convinced by the outstanding merits of our sanding systems:

- Extensive product range for all requirements
- Specifications according to BOStrab, EBA (German Railway Authority) Supplementary Regulation B011 and all railway standards are met
- Detailed quality control and documentation



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