



# SANDGRIP FOR MAINLINE

## APPLICATIONS

High-Speed Trains | Locomotives | Metros |  
Regional and Commuter Trains | Special Vehicles



**KNORR-BREMSE**

# Superior acceleration and braking under all conditions



Since timetables are getting increasingly dense, the traction and braking performance of state-of-the-art railway vehicles and their reliability are becoming more and more important. Especially under low and very low adhesion conditions, sanding systems have successfully proven to increase friction between wheel and rail. As a result the required brake performance can be achieved with a reduction of SPAD frequency of up to 98% (based on current studies of public bodies). Additionally our sanding systems offer various possibilities of condition-based maintenance in order to increase the vehicle availability and reduce fault-finding hours and downtimes.

Sand does not behave like a liquid. This characteristic has a tremendous impact on the whole design from sandbox to sand hose as well as the filling situation. Strong expertise is needed to optimize the sanding system for a given installation situation and to ensure a robust and reliable system in the long run. Therefore we offer the entire integration of a sanding system into the vehicle as well as qualified total life cycle support. The broad portfolio of **SandGrip Pneumatic** and **SandGrip Mechanic** sanding units allows customer-specific system configurations for every vehicle project.

## All in one location

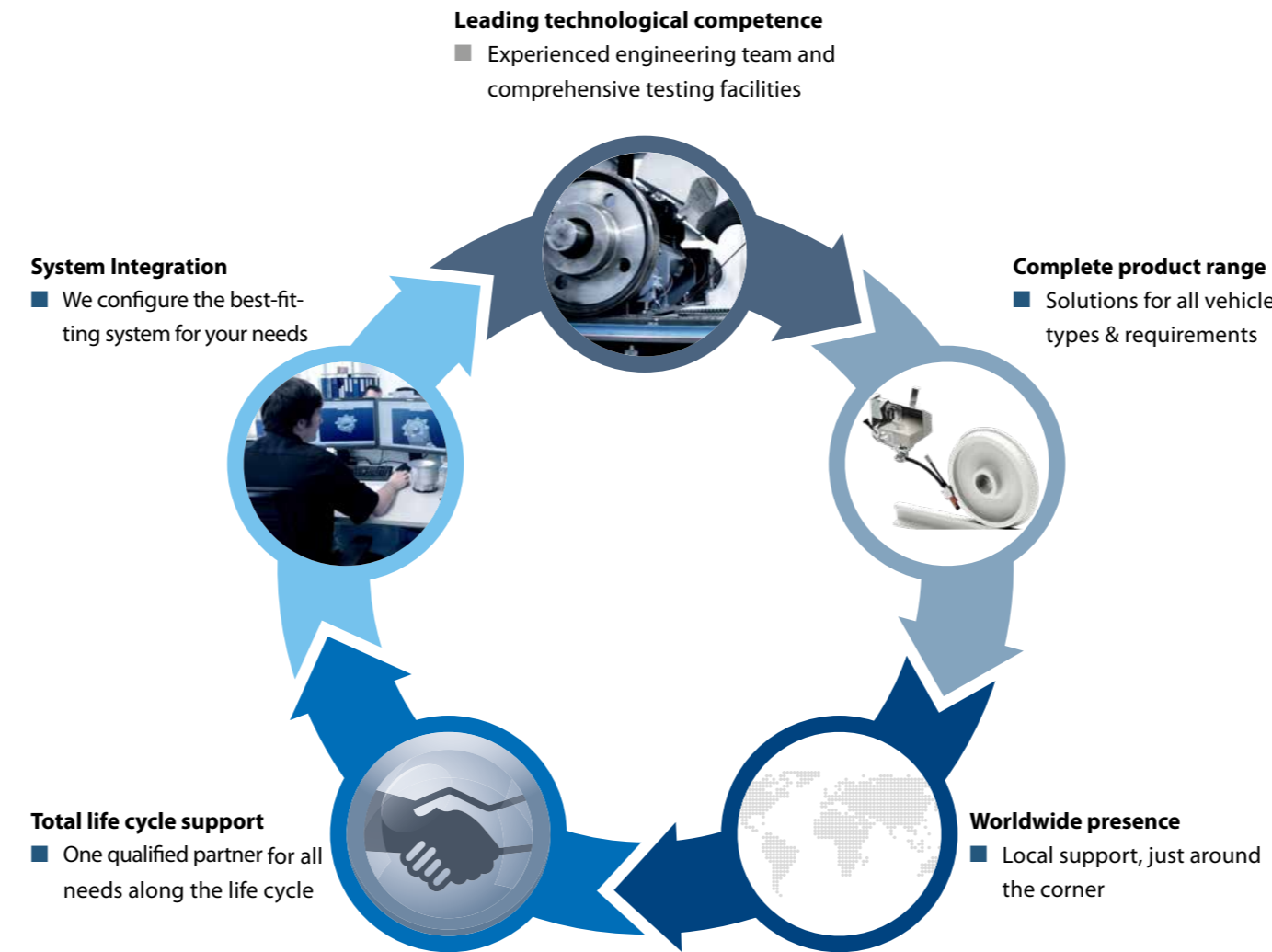
At its site in Mödling, Austria, Knorr-Bremse has built up decades of experience and know-how in sanding systems for mainline applications.

The result is thousands of successfully installed systems, which are in operation all over the world.

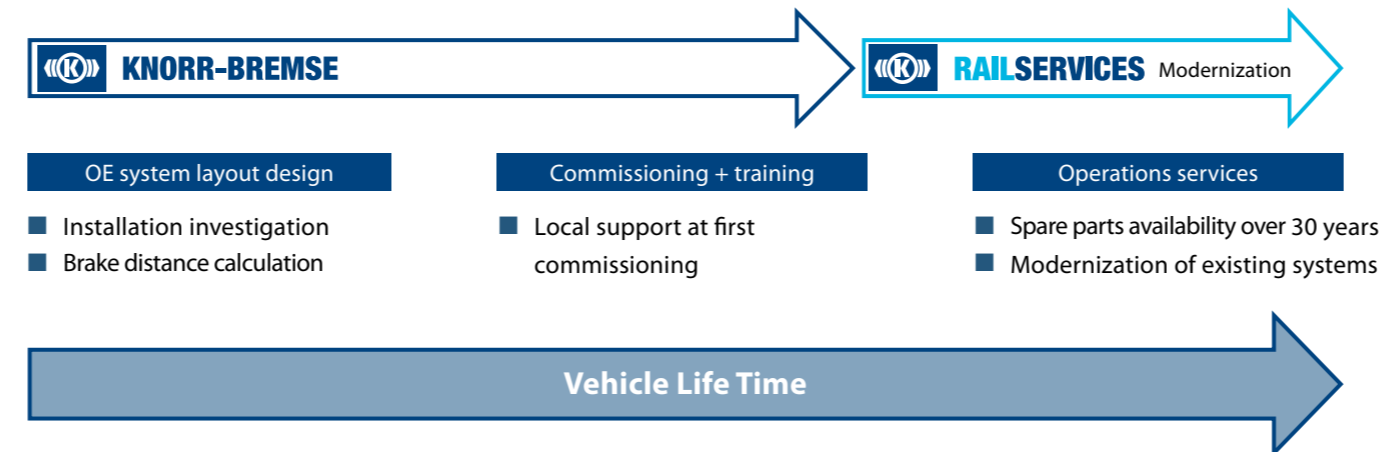
They represent the unique capabilities of Knorr-Bremse from OE system layout definition to modernization of existing systems.

## Customer benefits

- Tailor-made system solutions for each and every project
- Comprehensive system integration expertise covering OE design, modernization and retrofit needs
- Optimized total cost of ownership, ready for condition-based maintenance
- Full compliance with railway standards
- Global Knorr-Bremse network for localization, after sales service, etc.
- Extensive range of optional features, e.g. sand flow sensor



## Knorr-Bremse provides support and services over the entire life time of vehicles



## Sanding Units

SandGrip Pneumatic

SandGrip Mechanic



## SandGrip Accessories

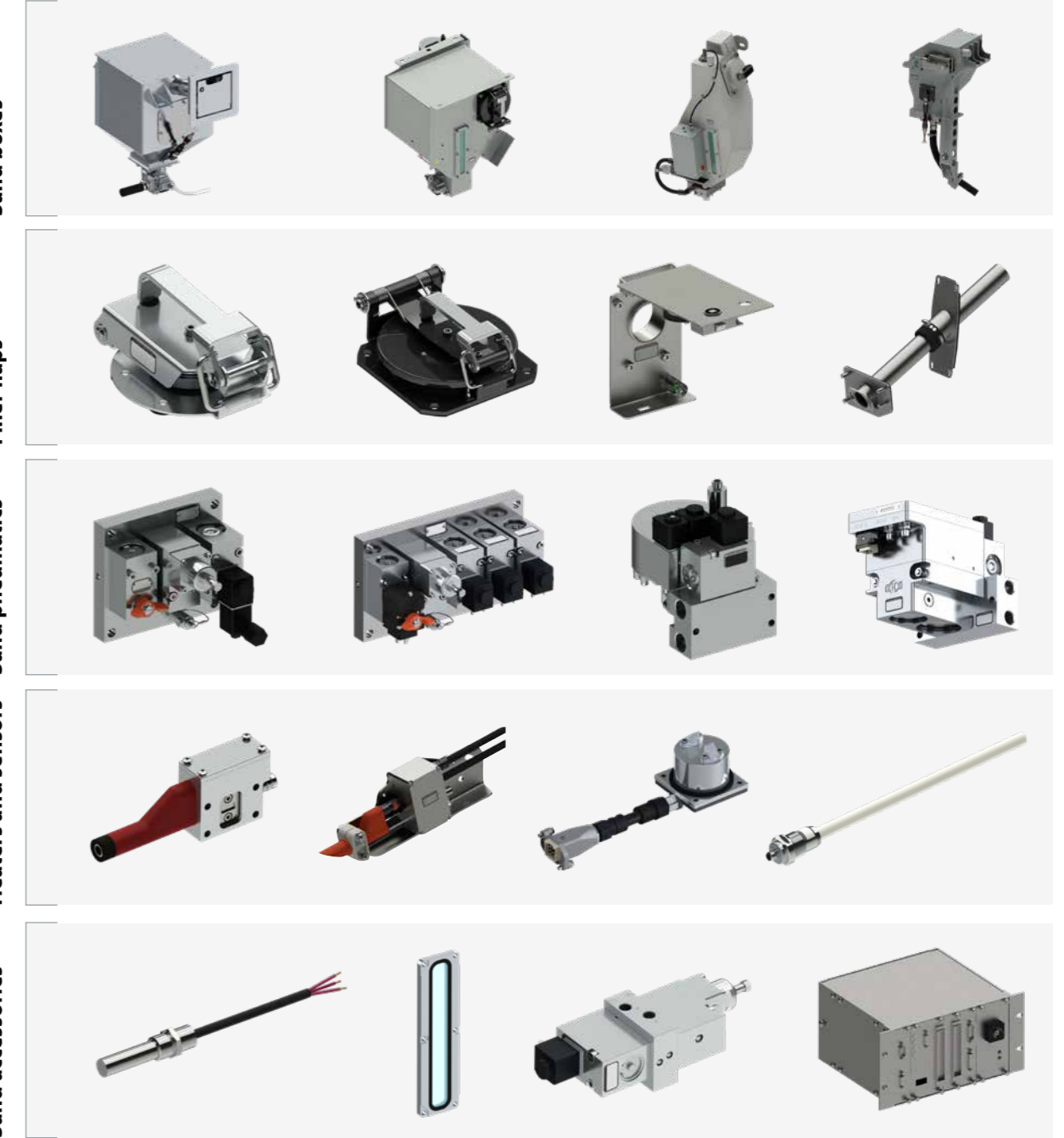
Sand boxes

Filler flaps

Sand pneumatics

Heaters and sensors

Sand accessories





## Knorr-Bremse – No.1 in Adhesion Management Best value – Safe – Global



### Knorr-Bremse GmbH

Beethovengasse 43-45  
2340 Mödling  
Austria  
Phone: +43 2236 409-0  
[rail.knorr-bremse.com/de/at](http://rail.knorr-bremse.com/de/at)

### Knorr-Bremse Systeme für Schienenfahrzeuge GmbH

Moosacher Straße 80  
80809 Munich  
Germany  
Phone: +49 89 3547-0  
[rail.knorr-bremse.com](http://rail.knorr-bremse.com)



 **KNORR-BREMSE**

 **NEW YORK AIR BRAKE**

 **IFE**

 **MERAK**

 **MICROELETTRICA**

 **SELECTRON**

 **EVAC**

 **ZELSKO**

 **RAILSERVICES**