



Merak
Knorr-Bremse España, S.A.
Parque Empresarial La Carpetania
C/Miguel Faraday, 1
28906 Getafe - Madrid
Spain
Tel.: +34 911 459 400
Fax: +34 911 459 444
www.merak-hvac.com
www.knorr-bremse.com

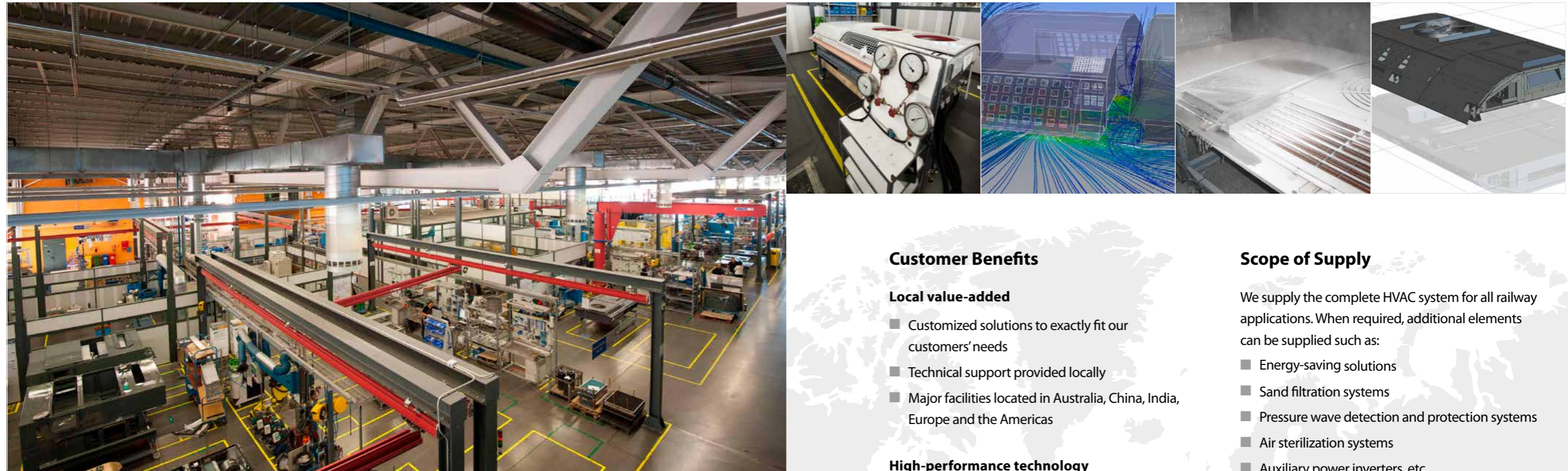


CLIMATE CONTROL SOLUTIONS

APPLICATIONS

High-Speed Trains | Light Rail Vehicles | Locomotives | Metros | Passenger
Coaches | Regional and Commuter Trains | Special Vehicles

Heating, Ventilation and Air Conditioning Systems (HVAC)



MERAK designs, manufactures, installs and provides support for high quality HVAC systems for all rail applications. Service-proven throughout the world for over 50 years, some 100,000 units guarantee passenger comfort every day, even in the toughest climatic conditions.

Our presence on all five continents and our wide experience in project management and system integration allow us to offer our customers a unique combination of global knowledge and outstanding local support. This also enables Merak to customize standardized modules to systems that respond to almost any specific requirement.

Merak's leadership in the field of HVAC systems is based on a solid product portfolio and close cooperation with operators and carbuilders:

- Local value-added powered by a global team
- High performance technology for all technical challenges
- Worldwide service network

Customer Benefits

Local value-added

- Customized solutions to exactly fit our customers' needs
- Technical support provided locally
- Major facilities located in Australia, China, India, Europe and the Americas

High-performance technology

- Operation under extreme conditions: temperatures from +55 °C down to -45 °C, dust and sand, ice and snow, etc.
- Specific standards and norms: NFF, GOST, EN, ASHRAE, AS, DIN, VDV, etc.
- Efficient energy consumption
- Enhanced technology and upgrades available
- Environmentally friendly design

Worldwide service network

- Close to our customers
- Support available throughout the entire life cycle of the product
- Experienced and highly skilled after sales teams including field technicians
- Overhaul, refurbishment and upgrade services

Scope of Supply

We supply the complete HVAC system for all railway applications. When required, additional elements can be supplied such as:

- Energy-saving solutions
- Sand filtration systems
- Pressure wave detection and protection systems
- Air sterilization systems
- Auxiliary power inverters, etc.

As well as a full range of validation test and analysis, e.g.:

- Duct network design
- Computational Fluid Dynamics (CDF) for HVAC system, ducting or complete car
- Finite Element Modeling (FEM) calculations
- HVAC noise and vibration analysis, etc.