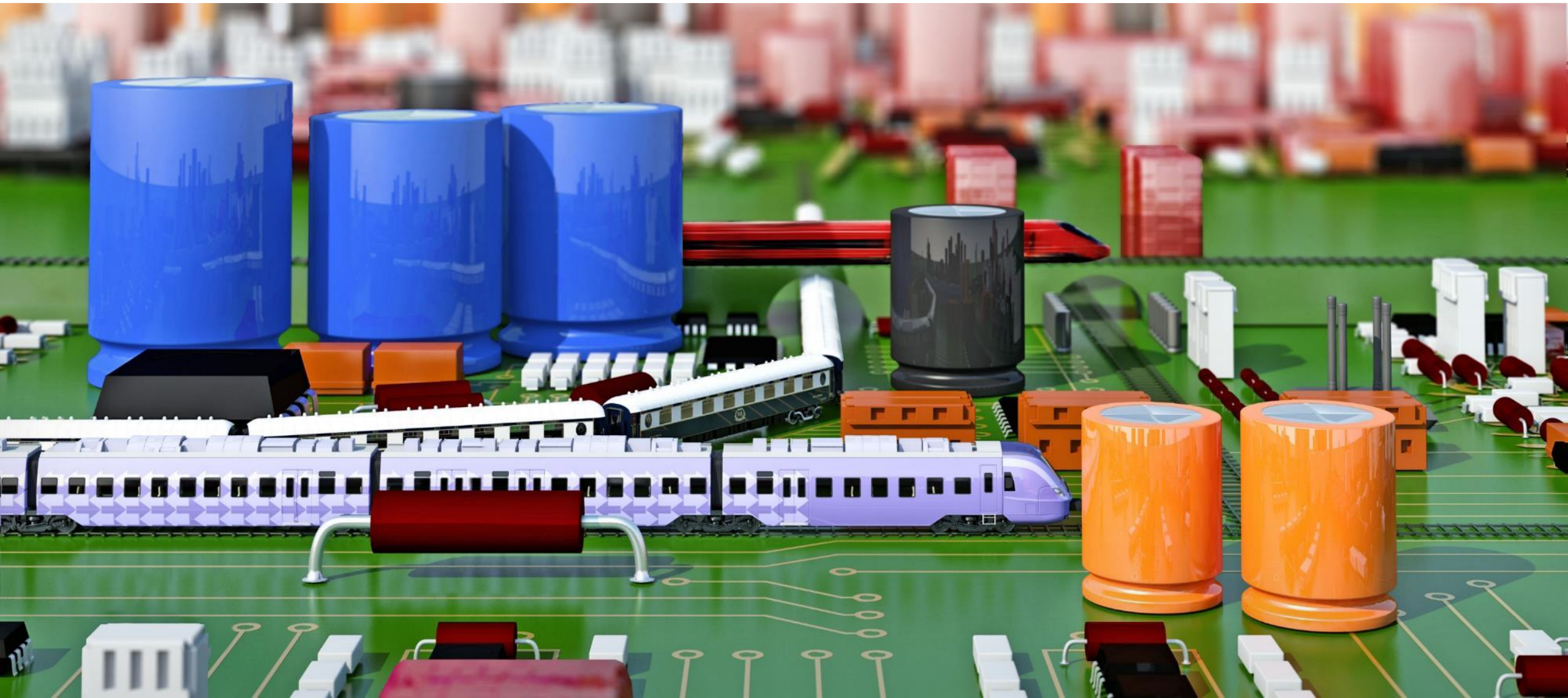


HIGH EFFICIENCY AND LOW WEIGHT RAILWAY TECHNOLOGY FOR MORE SUSTAINABILITY

SMART
RAILWAY TECHNOLOGY



ABOUT US.

- > **SMART Railway Technology GmbH**
develops and manufactures Auxiliary Power Converters
(also called Static Inverters or Static Converters)
for rolling stock used around the world

- > **Headquarters:** Kassel, Germany
- > **Employees:** 155
- > **Turnover:** approx. 25 million €

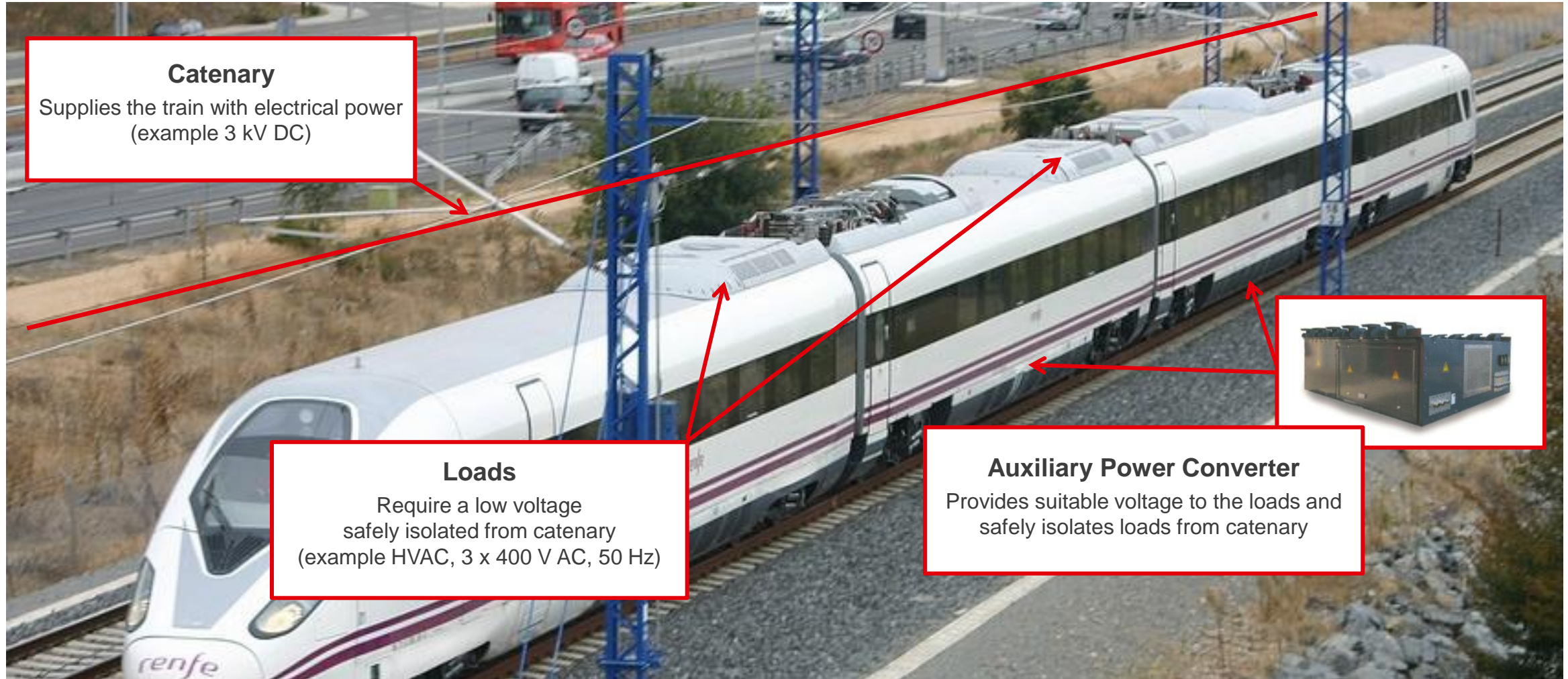
- > **Parent Company:** Beijing Dinghan Technology Group Co., Ltd.
a leading Chinese rail technology corporation

- > **Employees:** 1,800
- > **Locations:** Beijing, Guangzhou, Shenzhen
and four more Chinese cities
- > **Turnover:** approx. 200 million €



> **SMART Railway is the global market leader for low weight, high efficiency Auxiliary Power Converters.**

WHAT IS AN AUXILIARY POWER CONVERTER?



➤ Auxiliary Power Converters must reliably and safely supply all auxiliary loads in a train.

WHAT MAKES SMART RAILWAY SPECIAL?

Auxiliary Power Converter¹



- > In the devices, a **transformer** is used for galvanic separation and adjustment of voltage
- > In conventional converters the transformer dominates size, weight, and cost of the overall device

1. Competitor's conventional Auxiliary Power Converter for illustration.

Conventional vs. SMART Railway Solution



SMART Railway's Medium Frequency Solution:

- > Frequency: 50 kHz
- > Power: 100 kVA
- > Weight: 40 kg

Result: High efficiency and low weight



Conventional Transformer Solution:

- > Frequency: 50 Hz
- > Power: 100 kVA
- > Weight: 400 kg

Result: compromise between weight and efficiency.

> **SMART Railway uses latest power electronics technology to offer low weight and high efficiency Auxiliary Power Converters.**

PRODUCT PORTFOLIO. AT A GLANCE.

Auxiliary Power Converters for Each Train



SMARTconverter 3
The Standard for Multiple Units



SMARTconverter DC

for Locos, Double-Deck etc.



SMARTconverter LIGHT

for Trams and LRVs



SMARTconverter HV

for High-speed Trains



SMARTconverter MV

for Coaches

Battery Chargers



SMARTcharger

Inverters



SMARTinverter

Power Electronics for every Application



Custom-tailored

Repairs, Spare Parts, Services



SMARTservices

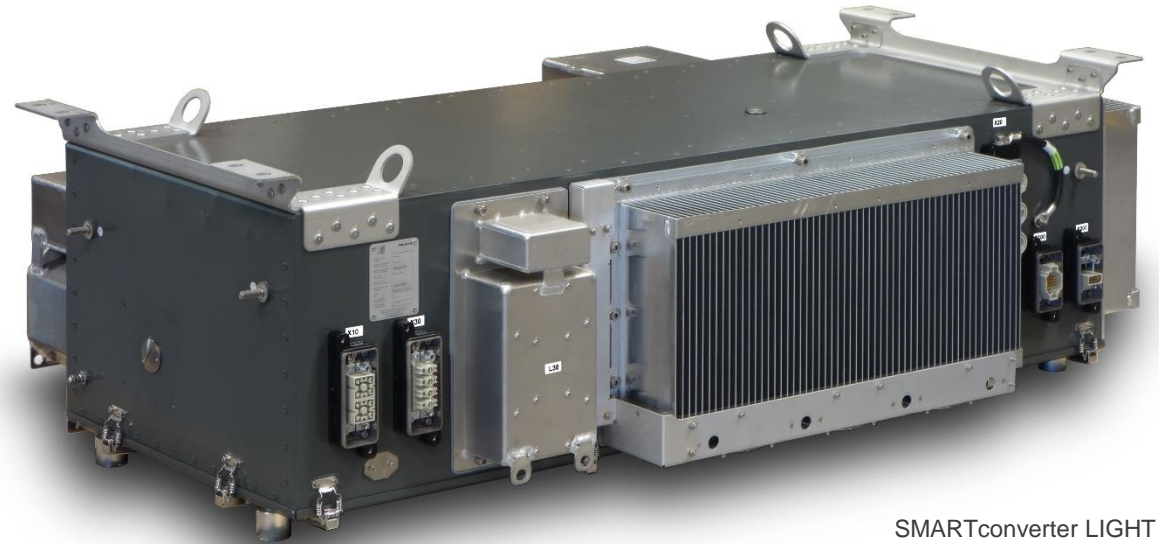
for all Railway Vehicles

> **SMART Railway offers solutions for all kinds of rolling stock.**

WHY CUSTOMERS USE SMART RAILWAY'S PRODUCTS.

Example: SMARTconverter LIGHT

- > **Low weight**
e.g. 250 kg for naturally cooled 55 kVA AC plus 12 kV DC version
SMARTcooling for 75 kVA AC plus 16 kV DC version
- > **High efficiency**
e.g. up to 96 %
- > **Quiet operation**
no moving parts
- > **Low maintenance**
no preventive maintenance required
- > **High reliability**
exceptionally high proven in-service reliability
- > **Unique service offerings**
spare parts and repair services for all equipment every made by SMART



SMARTconverter LIGHT

> **SMART's solutions are an alternative to conventional solutions, offering higher efficiency and lower weight.**

APPLICATION EXAMPLES.



Metro Barcelona

108
SMARTconverter 3
In revenues service
since 2020.



Metro Lisbon

28
SMARTconverter
LIGHT
In revenues service
since 2024.



Refurbishment MVB Magdeburg

11
SMARTconverter
LIGHT
In revenues service
since 2023.



Refurbishment Intercity ICM

*Nederlandse
Spoorwegen N.V.*
187 custom tailored
In revenues service
since 2006.

> **SMART Railway supplies major rolling stock manufacturers around the world.**

THANK YOU FOR YOUR ATTENTION.



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