

TRANSPORTATION

Safety & Reliability
for Electrical Power
Railway Market



MERSEN



By 2015 THE CHINESE RAILWAY SYSTEM IS EXPECTED TO RUN 100,000 KM

TRANSIT MARKET IS BOOMING



SOME KEY TRENDS:

- A huge need for mobility around the big cities all over the world
- The necessity of developing low-carbon transport systems
- The development of high speed train projects around the world
- The traintram concept

Transporting people imposes ever strengthening **safety** requirements.

Equipment **reliability** and low cost of ownership are essential.

After-sales service is critical and must be guaranteed for periods of 20 years or more.

3 REASONS TO CHOOSE THE MERSEN PARTNERSHIP



- We, in the Safety & Reliability for Electrical Power activity of Mersen, are partnering with major OEMs to design, bring to production and maintain complete electromechanical systems.
- We integrate protection components and power interconnection solutions to meet targeted functions and performance.
- We support our clients over the long term with:
 - A combined global/local organization always close to the customer.
 - An expertise based on long experience.
 - A highly specialized product offering tailored around the fuse.
 - A reliability proven by battery of extremely severe tests.



RAILWAY MARKET

ROLLING VS FIXED STOCK



Sub-station electrical cabinet

Function	Components	Systems
Overcurrent protection	Fuses	Fuse boxes
Overvoltage protection	Surge Protective Devices	Arresters in enclosures
Cooling	<ul style="list-style-type: none"> • Cold plates • Heat sinks 	Cooling loops
High Power Switches	<ul style="list-style-type: none"> • Disconnectors • Contactors 	Electrical cabinets
Power Transfer for Rail Vehicles	<ul style="list-style-type: none"> • Current Collecting Devices • Earth Return Current Units 	

Stock ←

repairing ←

→ Original equipment →

Cold wall (auxiliary)



Low voltage fusegear



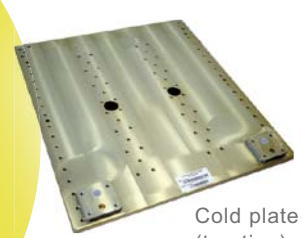
Earth return current unit



Enclosed surge arrester



Roof-fuse box



Cold plate (traction)



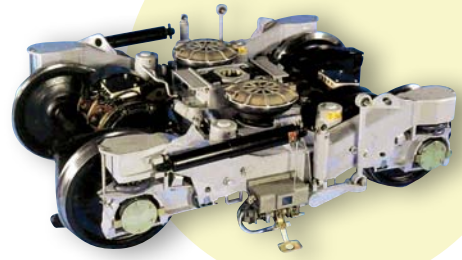
Current collector

Rail Trainsets Designers (OEMs)

Component & System Manufacturers



SUCCESS STORIES



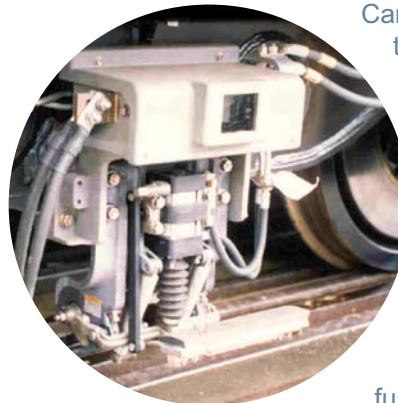
**50,000 TIMES
AROUND THE WORLD
EVERY YEAR!...**

What would you say of a product that travels 50,000 times around the world every year? Quite amazing, isn't it...!?

Would not it be even more impressive if this product would:

- **Ride on the ground** and not fly;
- **Operate in conditions as extreme** as the brutally cold winters of Canada, the steaming hot and humid afternoons of South-East Asia, or the dusty environment of large urban metropolis;
- **Help safely and comfortably** transport millions of people daily;
- Enhance the environment by eliminating the need for obtrusive and ugly infrastructures...

The little marvels that carry this duty on and on, sometimes for more than thirty years, are the unique **Current Collecting Devices**, or CCDs, designed, manufactured and distributed by Mersen.



Carefully engineered to answer the precise specifications of customers in the railway and urban transport equipment industries, these CCDs operate as a sliding contact that picks up the current needed to power the trains from a third rail, and also protects the whole traction chain by incorporating a fast-acting fuse that will open the circuit in case of electrical fault.

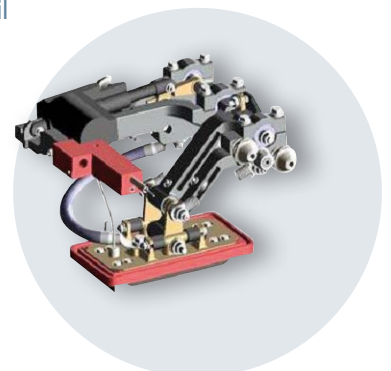
Built for high reliability and low overall cost of ownership Mersen CCDs are in use in more than fifty cities worldwide.

PART OF THE TRIP... FOR INNOVATION

Innovative light rail vehicle system
This solution is spreading to many cities throughout the world.



Mersen is part of the innovation while providing the third rail current collector for the Bordeaux tram. In Bordeaux, the third rail for ground power supply is between the tracks and energized only beneath the length of the tram set then fully safe for people.





CONTACTORS

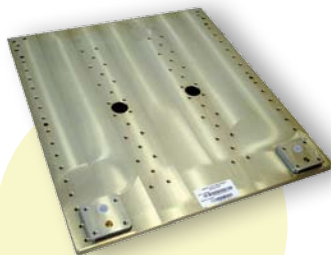


Designed to equip power circuit under voltages from 750 to 1 500V, **Mersen contactors** ensure the supply of many public transportation networks: Metros, Trolleybuses or Tramways.

Designed to operate under extreme conditions, those are as performing for fixed substations as for rolling stock.

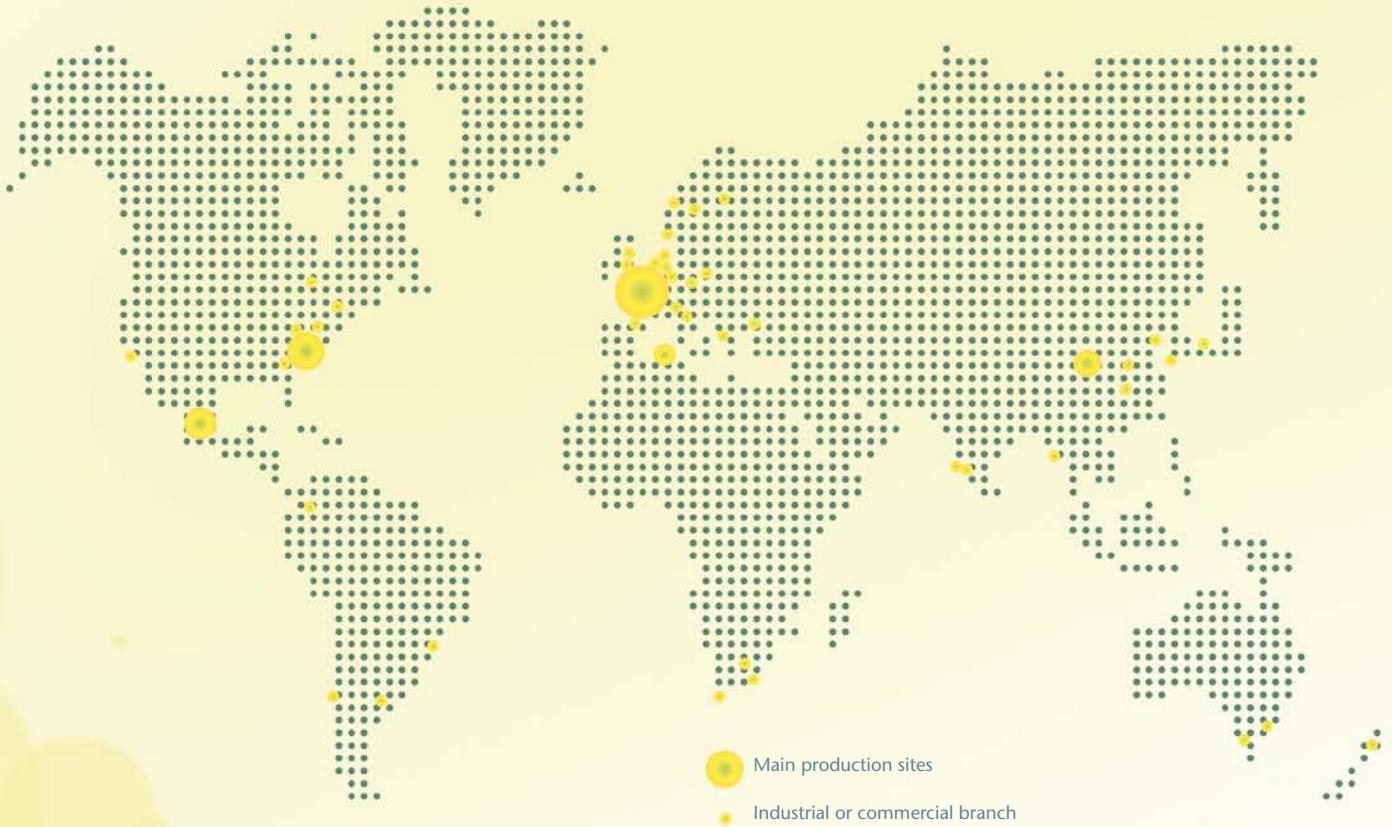
THE SHANGHAI METRO

The **Shanghai metro** cars of the Shanghai Pearl Line (Line 3) are equipped with our roof-fuse boxes.



TGV WORLD RECORD

Mersen took part in the speed world record of **TGV** at 574.8 km/h with the carbon strips collecting the current via a sliding contact onto the catenair and the cold plates cooling down the traction power drives as well.



MERSEN
Expertise, our source of energy

**A WORLD LEADER
 in safety & reliability
 for electrical power**

A GLOBAL PLAYER

Global expert in materials and equipment for extreme environments and in the safety and reliability of electrical equipment.

Mersen designs innovative solutions to address its clients' specific needs to enable them to optimize their manufacturing process in sectors such as Energy, Transportation, Electronics, Chemical, Pharmaceutical and Process Industries.

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