

# Power Transfer for Rail Vehicles

SOLUTIONS GUIDE



# Commuting, sightseeing, moving... 400 different projects all

## Mersen provides expertise to customers for safety & reliability of electrical power

We integrate our product expertise into your application to make it safe, reliable and profitable. Our product expertise includes:

- Overcurrent protection (fuse and fusegear)
- Surge protection
- Electronic systems for energy management
- Laminated bus bars
- Cooling of power electronics
- Low voltage and high power switches
- Power transfer for rail vehicles



## Customer Intimacy

A trusted team member, Mersen invests early in your projects with research and design support. Our experts offer experienced, attentive and responsive applications support from the initial design stage, through system implementation and to well after the sale.

### LEGEND

- metro
- skytrain
- velni's EP 20s
- metro & multipurpose trains
- subway & velaro CRH3s

# Everywhere and everyday with Mersen over the world since 1978



## Global Service

We bring our expertise to you with products designed to meet your standards. Experts in traction applications, around the globe, provide experienced and attentive customer service.



## Power transfer for rail vehicles solutions

Encompass third rail current collectors, on-board switches, fuse boxes and enclosed lightning arresters, earth return current units. Serve rail train set designers, engineering services, transit authorities.

# TO COLLECT

## Current collector devices

### Bottom ant top contact

The collector is fastened on the vehicle off-center from the rail and a pressure system maintains contact vertically, from top to bottom or bottom to top.

With this type of device all three free surfaces of the conducting rail can be tapped.

Integrated or separated fuse box.

Manual or power retraction.



### Lateral contact

Single or two-pole.  
The pressure system maintains contact horizontally in the rail's axis.



VAL 208

Vancouver



MP05



Berlin

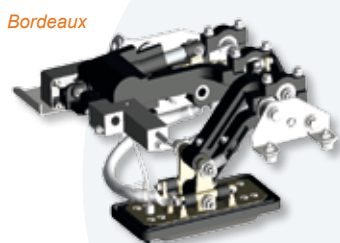
Brussels

### Beam-mounted contact

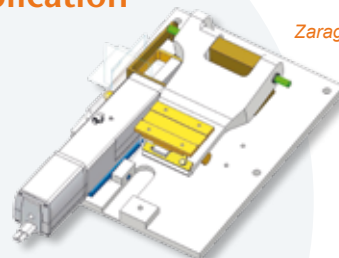
Collectors mounted on insulated beam and air operated.



### Specific device for tram application



Bordeaux



Zaragoza

# Power Transfer

## TO PROTECT

### Fuse boxes

#### Bogie mounting

Insulating, self-extinguishing fuse-boxes withstanding shocks and vibrations in compliance with current standards.

Approved by many manufacturers.

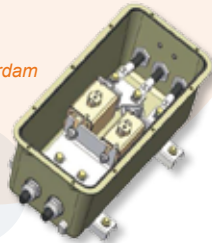
MF 2000



Budapest



Amsterdam



#### Top mounting



Shanghai

### Lightning arresters

Mersen proposes to use a zinc oxide varistor combined with a fuse and an electric signalling system.

Thanks to this, it is now possible to vastly improve the quality of power line protection with lessened peak let-through when overvoltages occur.

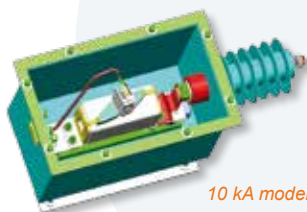
Indoor and outdoor use.

Insensitive to vibrations.

On-board or fixed installation



Microswitch



10 kA model



Disconnecting fuse

# for Rail Vehicles

TO SELECT

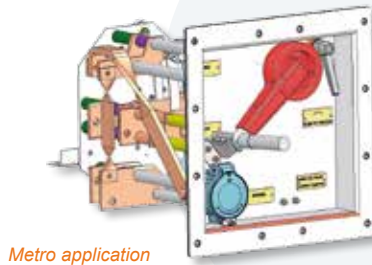
## Disconnectors Change-over switches

MERSEN offers a wide customization-driven modular range of disconnectors and change-over switches specially suitable for electric traction on-board equipment.

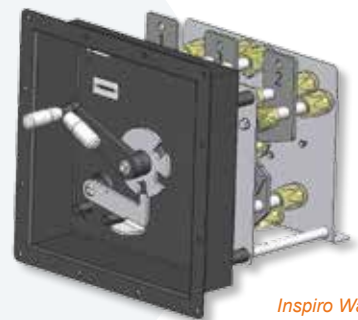
All these devices are compliant with current standards with adapted technical performances (short-circuit current capability, endurance, small load make / break capacity), long distance between open contact and self-cleaning contacts.



### Manual activation



*Metro application*



*Inspiro Warsaw*

### Motorized activation

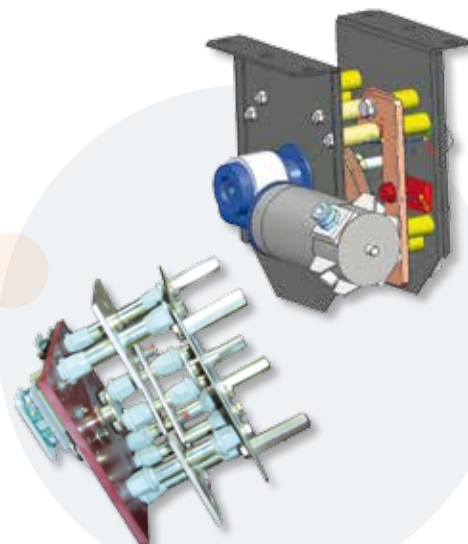


*Amsterdam*

*MF 2000*

*Shanghai*

### Rotary switches



*Montreal*

# TO REJECT

## Earth Return Current Units

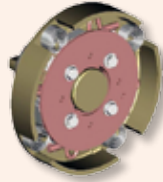
ERCUs, axial or radial, are installed on axles to provide an effective shunt around the bearings.



*Chennai*  
(3 boxes 20x40 600 A)



*Citadis*  
(4 brushes 12.5x25)



*Velaro China*  
(High-speed train, 600 A)



*Coradia*  
(3 brushes 12.5x32)



*EP20 Velni Russia*  
(4 brushes 20x40)



*Beijing L15 B45*  
(3 brushes 20x40 600A)



*Alp 45*



On recent tramway rolling stock, the device is mounted insulated in the hub and returns the current to the rail via brushes in contact on a track. A watertight ball bearing is built into the unit to ensure rotation of the whole with the disc.





**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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