Electrical Solutions for Motors & Generators
Solutions & Services for motors & generators

- **Electrical solutions for Power Transfer**
  - **Graphite**
    - *Brushes* manufactured from *plates*:
      Graphite / carbon components carrying current while ensuring contact between the static and rotating parts of a motor.
  - *Sliding contacts* (pantograph strips, 3rd rail collector shoes):
    Graphite components sliding and collecting current from a catenary or a rail.
  - **Metal**
    - *Brush-Holders*:
      Guide brushes and keep them permanently in contact with the revolving part of the motor at various pressure levels.
    - *Slip ring assemblies / Brush gears* for generators:
      Device used to transfer power produced by a generator to an electrical network.

- **Electrical solutions for Signal Transfer**
  - **Signal Transfer systems**
    Device transferring data between the static and revolving parts of a motor or a generator (Position, on/off…). From simple signals to fully integrated systems (Air, liquid, gas…).

- **Field services**
  - Maintenance, optimisation and diagnostics of electrical machines
Integrated Supplier

- R&D
- Engineering
- Production
- Manufacturing
- Sales Forces
- Technical Expertise
- Field Services
A Global Player in 32 countries servicing 43000 customers
Our Offer per Strategic Segment

- **ELECTRICAL SOLUTIONS FOR POWER TRANSFER**
  - Metal
  - Graphite

- **SIGNAL TRANSFER SYSTEMS**
  - Signal Transfer

- **WINDTRACKER™ & OTHER SERVICES**
  - Services

**Strategic Segments**

- *Railway Systems*
- *Renewable Energies*
- *Conventional Energies*
- *Process Industries*
- *Transferral Industries*
# Solutions for Railway Systems

<table>
<thead>
<tr>
<th>Strategic Segments</th>
<th>Marketing Segments</th>
<th>Brush-holders</th>
<th>Slip ring assemblies / Brush gears</th>
<th>ST</th>
<th>Carbon brushes</th>
<th>Current collection</th>
<th>Services</th>
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<tbody>
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<td>Railroads</td>
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ST: Signal transfer systems
Complete solutions for Railroads & Transit Systems
# Solutions for Renewable Energy

<table>
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CC: Current collection
Complete Solutions for Wind Turbines
Complete Solutions for Hydro-generators

- Generator Slip ring
- Brush-holders
- Power carbon brushes
- Brush-holders assemblies / Brush-holders with Dust Exhaust Systems
- Grounding carbon brushes
- Brush-holder brackets
- Power carbon brushes
## Solutions for Conventional Energy

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ST: Signal transfer systems, CC: Current collection
Complete Solutions for the Mining Industry
Complete Solutions for Turbo-generators

- Ventilation boxes with access doors
- Brush gears
- High speed slip ring assemblies
- Bracket and underload removable systems
- Underload removable brush-holders
- Shaft earthing systems
- Brush-holder and grounding brushes
- Carbon brushes
# Solutions for Process Industries

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Complete Solutions for Pulp & Paper Industries

1. Pulp processing
   - Carbon brushes
   - Brush-holders
   - Slip ring assemblies

2. Paper paste transfer
   - Carbon brushes & brush-holders for pump sections

3. Paper paste pressing
   - Carbon brushes & brush-holders

4. Paper drying
   - Carbon brushes & brush-holders

5. Paper finishing
   - Carbon brushes & brush-holders

6. Paper cutting & finishing
   - Carbon brushes & brush-holders

Services & Expertise
Complete Solutions for the Cement Industry

1. Raw material transfer
   - Carbon brushes & brush-holders for conveyers

2. Raw material crushing
   - Carbon brushes & brush-holders

3. Raw material grinding
   - Carbon brushes & brush-holders
   - Slip ring assemblies

4. Powder transfer
   - Carbon brushes & brush-holders for extracting ventilators

5. Powder cooking & clinker process
   - Carbon brushes & brush-holders for hot mills

6. Clinker cooling & transfer
   - Carbon brushes & brush-holders for grinders
   - Slip ring assemblies for grinders

7. Cement process & storage
   - Carbon brushes & brush-holders for grinders

Services & Expertise

- Mersen
Complete Solutions for Wire & Cable Industries

1. Roller unwinding & winding
   - Carbon brushes & brush-holders

2. Wire rolling
   - Carbon brushes & brush-holders for tachometers
   - Carbon brushes & brush-holders for rollers

3. Wire annealing
   - Carbon brushes & brush-holders
   - Slip ring assemblies

4A. Cable coating
   - Carbon brushes & brush-holders

4B. Cable bunching
   - Carbon brushes & brush-holders

4C. Cable extrusion
   - Carbon brushes & brush-holders

5. Cable winding
   - Carbon brushes & brush-holders
## Solutions for Transferral Industries

<table>
<thead>
<tr>
<th>Strategic Segments</th>
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SR: Slip ring assemblies, BG: Brush gears, ST: Signal transfer, CC: Current collection
Objectives:
- Optimize equipment performance
- Increase productivity
- Reduce maintenance costs

For electric rotating machines, Mersen offers:
- Expertise, diagnostics & onsite interventions with complete report
- Components design & re-engineering

Our Teams have extensive knowledge in:
- Diagnostic & expertise
- Audit and recommendations
- Feasibility studies
- Conception & engineering
- Machining of your slip ring assemblies & collectors (approved and licensed technology)
- Replacement & installation of solutions
- Exchange of know-how
Services / Windtracker™ dedicated to Wind Energy Industry

> Objective: improve wind turbine performance and reliability

- International dedicated sales & technical teams
- Our Windtracker™ experts have been trained and certified on:
  - The use of their own Personal Protective Equipment
  - Working at height
  - Wind turbine rescue (various descent systems)
- They work in accordance with the Mersen safety policy
- All windtracker™ teams undergo regular physical examinations
- Up-tower interventions (onshore & offshore)
- Technical expertise, diagnostics and trouble shooting
- Customized solutions & system upgrades
- Technical training for students and professionals available on request
Services / Trainings & Technical Seminars
Dedicated to our Customers

> Objectives:
  - Optimize equipment performance
  - Train users on the mechanics of DC motors

Our trainings and technical seminars:
  - Led by our technical experts
  - According to a defined curriculum or adapted to specific needs
  - Transfer of skills
  - At either our location or our clients’
Services / Tools and Measuring Devices

> Objective: Preventive maintenance of your collectors and slip ring assemblies

Our tools & measuring devices:

- CL-Profiler
- ComPro2000™
- Grinding stones & accessories
- Portable mica undercutters
- Dynamometers
- Stroboscopes
- Alarm boxes
- Roughness measuring device
- Scrapers & slotting files
R&D

> R&D center located in Amiens
> 1 Design & Development plant for Signal Transfer systems (Jestetten)
> Teams of Doctors, Engineers & technical people specialized in specific competence areas
> Metal & graphite
> Partnerships with universities, external laboratories, clusters
> Test benches