

## EXTELEC Training (on customer's site)

**Customer:**

Name:  
Email:  
Telephone:  
Address:

**Mersen representative:**

Name:  
Email:  
Telephone:

**BASIC OPTION: 1 day**

● **Fundamentals of the carbon brush:**

- Carbon brush design and role of its components.
- Grades categories, their characteristics and manufacturing methods.

● **Functions of carbon brushes, brush-holders, slip rings, commutators and their roles:**

Explanation of essential parameters for good operation (functioning) of the carbon brush:

- Electrical parameters: voltage drop, current density, operating cycle, sparking, electrical losses, etc.
- Mechanical parameters: setting up, roughness, out of round, pressure, peripheral speed, vibrations, mechanical losses, etc.
- Environmental parameters: pollutions, hygrometry, temperature etc.
- Commutator's film creation and maintenance, issues related to the environment and solutions.

● **Analyzing motor malfunctions by observing the condition of the carbon brushes, commutators and slip ring assemblies:**

Commutator film and sliding surfaces analysis

Please precise the type of machines:

- DC machines
- Asynchronous motors or generators
- Synchronous motors or alternators

*This part of the training can be presented in class room, or during machines visit.  
In case of machines visit, please ensure their availability.*

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### **PLEASE CHOOSE YOUR OPTIONS:**

**Reminder of electricity basis (1 h)**

*Mersen recommends this option as a requirement for Basic option.*

**Commutation – DC machines (3 h) – available in French only**

DC Machine operating parameters, essential elements constituting the machine and their role, commutation basis.

**Carbon brush and synchronous machines (1 h)**

Basis reminder, essential elements constituting the machine and their role, applications (ghosting effect, polarity inversion, reactive mode functioning).

**Using diagnostic and control equipment (1 h)**

CL Profiler, dynamometer, roughness meter.

### **Wind Extelec:**

**Wind turbine generators (1 day):**

Maintenance of carbon brushes, brush-holders and slip rings:

- location and functions of products,
- carbon brushes seating,
- cleaning procedure,
- troubleshooting

***If you would like that Mersen provides you a specific training which is not included into options available, please make a request.***

**Date of the Training:**

*Mersen reserves the right to change the date requested according to the availability of trainers.*

**Number of participants:**

*10 people at maximum.*

**Electrical machines types:**

*please precise the type of electrical machines used*

**For more information: [infos.amiens@mersen.com](mailto:infos.amiens@mersen.com)**