

BRUSH GEAR SYSTEMS

PRODUCT



MERSEN

COMPLETE SOLUTIONS FOR NUCLEAR AND THERMAL POWER PLANTS

In nuclear and thermal power plants, Brush gear systems safely transfer efficient and reliable high electrical power to the rotor in running conditions. They have a direct impact on performance as they allow reliable power production.

To ensure the optimal running of power plant equipment, Brush gear solutions must offer:

- High reliability and continuous power production
- Protection from unfavourable environmental conditions (vapor oil, dust, temperature...) through state of the art isolation systems
- Low and safe maintenance during power production
- Simple monitoring when checking the equipment while it runs

WHY CAN YOU TRUST MERSEN?

- > Mersen is the only company to master all the different technologies necessary to design and manufacture high performance Brush gear systems.
- > As an integrated supplier, Mersen has the ability to design, manufacture and provide maintenance, technical support and training (onsite or in our plants) for Brush gear solutions, worldwide.
- > Mersen is a very well known player in the Conventional Thermal Power Industry and works with the leading OEMs in this market.*
- > We do know well high speed applications and always deliver high quality electrical solutions dedicated to these very specific applications.
- > At Mersen, we continuously develop and offer new technologies and systems to the market, anticipating the customers' needs.

* Please contact us for our list of references.

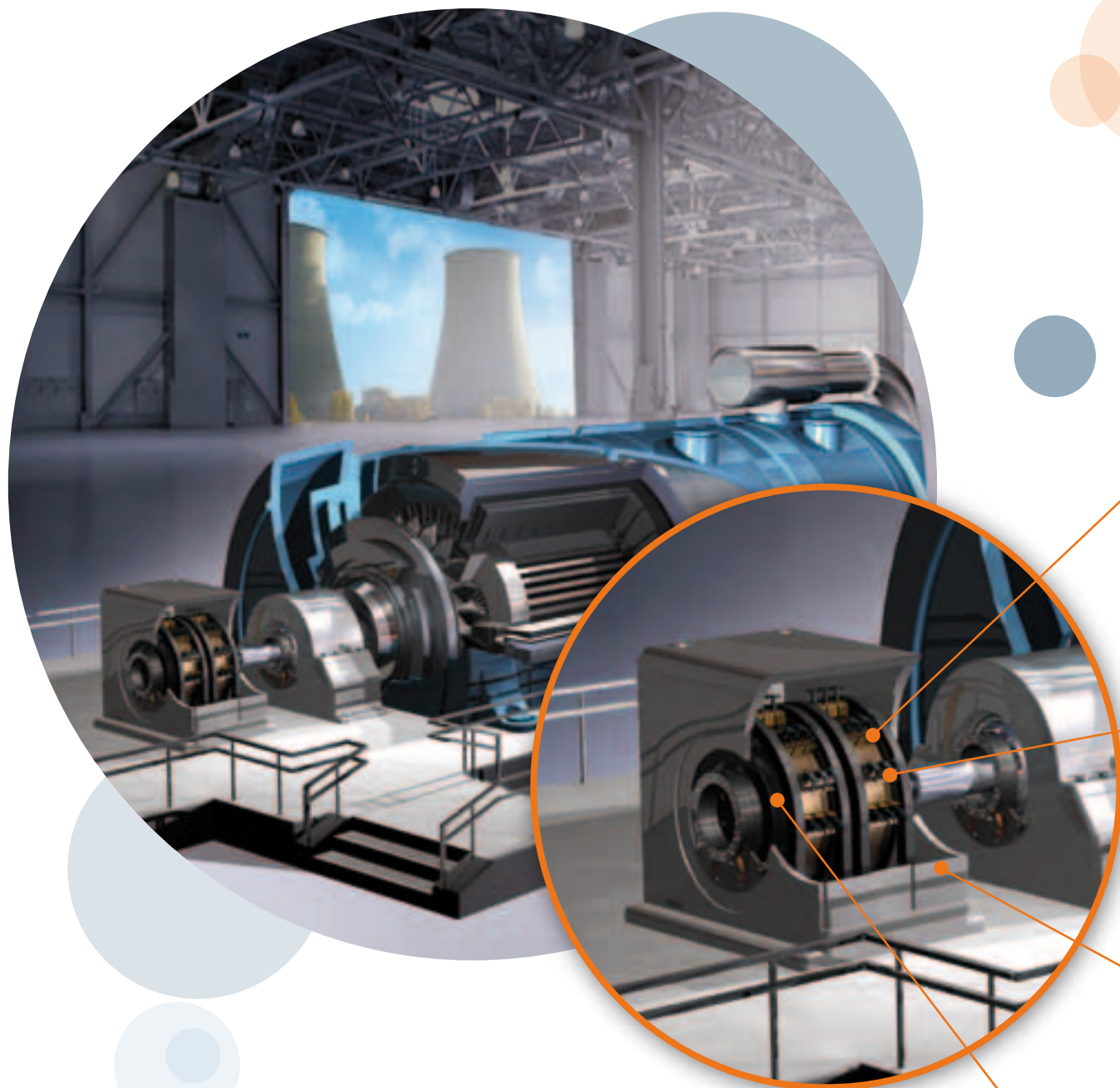
HOW DO MERSEN BRUSH GEAR SYSTEMS ANSWER YOUR REQUIREMENTS?

> We design and manufacture our solutions to meet high reliability requirements, allowing you to experience continuous power production on a daily basis. Our solutions benefit from our extended knowledge of excitation systems in turbo-generators. They are:

- Completely integrated
- Designed according to the global standards
- Made of high quality materials
- Carefully sealed and protected from external influences (pollution...)
- Easy and safe to replace in running conditions (plug set systems)
- Designed to run with one unique carbon brush grade
- Made to offer perfect current distribution without losses through our plug set systems
- Designed for optimal and continuous running thanks to our unique measuring and regulation systems (cooling, control boxes for temperature and humidity rate)

> Our solutions are conceived to require little maintenance. They allow safe and simple monitoring as they permit to verify the system during power production, in complete safety.

- Mersen brush-holder pressure systems are designed to last
- Mersen plug set systems allow you to change easily carbon brushes under load, requiring no production interruption
- Our unique isolated systems allow safe maintenance
- Our Brush gear housings allow simple visual control helping to verify the good running of your equipment
- We offer carbon brush wear detection with electrical monitoring permitting to set maintenance planning



MERSEN SOLUTIONS FOR BRUSH GEAR SYSTEMS

A complete offer composed of high performance solutions

Mersen Brush gear assemblies are composed of several high performance electrical components, conceived to contribute to the system overall performance.

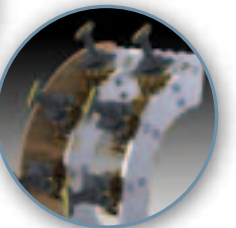
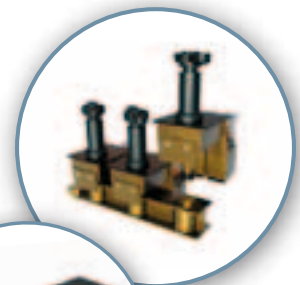
CARBON BRUSHES

- Our LFC554 carbon brush grade is the most famous grade for thermal and nuclear power generators. LFC554 is renowned for high current applications as it allows fewer electrical losses and does last longer.
- We also offer carbon brush wear rate detection systems that warn you in advance, allowing you to plan maintenance operations.



BRUSH-HOLDERS & COMPLETE PLUG SET SYSTEMS

- Mersen brush-holders allow perfect current distribution, guaranteeing the good running condition of your equipment.
- Their accurate pressure systems are made to ensure the best carbon brush behavior during a long period of time.
- Our complete plug set systems are designed for high reliability and respect high safety standards.



SLIP RING ASSEMBLIES

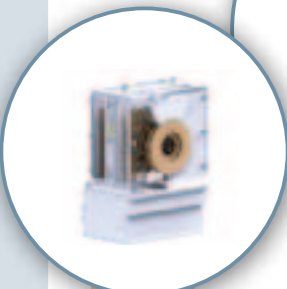
- Our slip ring assemblies are high quality solutions designed and manufactured to reach optimal balancing and deliver good resistance to friction and temperature rise. They are well proved and 100% ultra sonic tested.



BRUSH GEAR HOUSINGS

(also called Collector enclosures and housings)

- Our housings are complete metal boxes, accurately dimensioned and designed according to the Brush gear specifications and air flow calculation.
Optional services available:
- Development of easy fitting retrofit solutions for end users' needs.
- Accurate measuring tools to monitor conditions of production (among which control boxes for temperature and humidity rate...).
- Possibility to integrate specified cooling systems.



R&D FOR BRUSH GEAR



MERSEN FACILITIES & LABORATORIES

- Our main R&D center is located in France. Because Brush gear systems matter, we have implemented a specific design & development facility in Austria for their study and continuous improvement.
- We test our solutions on unique test benches in real conditions and use dedicated equipment such as climate chambers.
- Our Brush gear systems are manufactured in Europe, and we offer responsive local service through our global network.

MERSEN R&D TEAMS

- Our Engineering and R&D team is composed of 15 doctors assisted by engineers and technical people.
- They work with 3D software and cutting edge equipment in order to come with the best ideas and make them come to life.
- Mersen R&D teams use state of the art tools and make special calculations (electrical, mechanical, finite elements...) to optimize Mersen solutions and ensure their performance on a day-to-day basis.
- They benefit from an extended network of partners (universities, external laboratories, clusters...) with which Mersen works in order to keep on pushing innovation for Brush gear assemblies.

MERSEN

Mersen provides a wide range of high performance solutions for electrical rotating machines: carbon brushes, brush-holders, slip ring assemblies, brush gear, signal transfer systems and current collection systems.

Please contact us for more information.

SERVICES

At Mersen, we offer a large range of services for your engineering and maintenance teams:

> MOTOR & MAINTENANCE SERVICES

- Expertise
- Diagnostics
- On site intervention
- Refurbishing & re-engineering of solutions and components

> TOOLS & MEASURING DEVICES

- CL-Profilers
- ComPro2000™
- Grinding stones
- Mica undercutters
- Dynamometers
- Stroboscopes
- Alarm boxes
- Roughness meters
- Grinders & accessories
- Saws
- Scrapers
- Slotting files

> TRAINING

- Led by technical experts
- According to a defined curriculum or adapted to specific needs
- Transfer of skills
- At either our location or our clients'



A GLOBAL PLAYER

Global expert in materials and solutions for extreme environments as well as 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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