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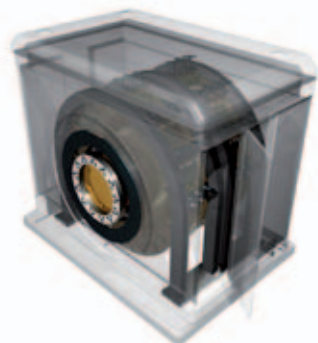
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# BRUSH GEAR SYSTEMS



# COMPLETE BRUSH GEAR SYSTEMS\* FOR NUCLEAR AND THERMAL POWER PLANTS

In nuclear and thermal power plants, generators require brush gear systems (also called generator collector assemblies or collector enclosures and housings) capable of continuously and safely transferring high excitation currents to the rotor under all running conditions. Brush gear systems\* have a direct impact on performance as they allow reliable power production.

Brush gear systems\* must offer:

- High reliability and continuous power production.
- Protection against unfavorable environmental conditions (vapour oil, dust, extreme temperatures).
- Minimal safe maintenance during power production.
- Simple monitoring procedures whilst running.



## WHY 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 systems\*, worldwide.
- > Mersen is an international player in this market and partners with the leading turbo-generator OEMs\*\*.
- > Mersen knows high speed applications and always delivers high quality electromechanical solutions dedicated to these very demanding applications.
- > At Mersen, we continuously develop and offer new technologies and systems to the market, anticipating the customers' needs.

## HOW DO MERSEN BRUSH GEAR SYSTEMS\* MEET YOUR REQUIREMENTS?

- > Our extensive knowledge of excitation systems allows us to design and manufacture high quality reliable solutions ensuring the continuous power production of your turbo-generators.
- > Our solutions require little maintenance and allow safe and simple monitoring of performance during power production.
- Designed to run with our unique 'Low Friction Coefficient' carbon brush grade LFC554.
- Completely integrated.
- Conformity with international standards.
- High quality materials.
- Intrinsically sealed for protection against environmental influences.
- The 'laminar silver multi-contact system' ensures optimal current distribution with minimal losses in our plug set systems over a long period of time.
- Safe and easy to replace plug sets and brushes under running conditions.
- Accurate and reliable measuring systems for temperature and humidity.
- Mersen brush-holder pressure systems are designed to last.
- Mersen's uniquely isolated plug set systems allow safe and simple replacement of carbon brushes under load with no production interruption.
- Our housings are designed for simple visual verification of safe and uninterrupted running.
- We can offer integral brush wear detection with electrical monitoring for remote indication.

# BRUSH GEAR SYSTEMS\*



## MERSEN SOLUTIONS FOR BRUSH GEAR SYSTEMS\*

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

### CARBON BRUSHES

- Our 'Low Friction Coefficient' carbon brush grade LFC554 is world renowned and is the grade of choice for high speed and high current applications. Its unique ability to share current between brushes at minimal friction provides cooler running and outstanding brush life.
- We also offer carbon brush wear detection systems, making your maintenance operations easier.



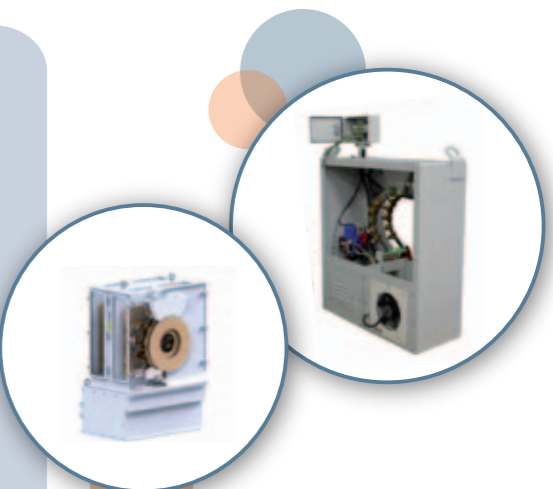
### BRUSH-HOLDERS AND COMPLETE PLUG SET SYSTEMS

- Accurate long lasting pressure systems ensure optimal brush contact.
- Precision robust die-cast components of our unique copper alloy provide stability and resistance to corrosion.
- At the heart of the plug set system our silver multi-contact socket ensures optimal current conduction with minimal losses.



### BRUSH GEAR HOUSINGS

- Metal enclosures or boxes support the brush gear assembly and are designed for even air flow distribution for cooling.  
*Optional services available:*
- Design and development of easy fitting retrofit solutions to meet our customers' demands.
- Accurate measuring tools to monitor conditions of production (among which control boxes for temperature and humidity rate...).
- Ability to integrate specified cooling systems into our brush gear systems\*.



### SLIP RING ASSEMBLIES

- Our slip ring assemblies are well proven, high quality solutions designed to be precision balanced up to 90 m/s.
- They are highly resistant to corrosion and thermal imbalance.
- All components are 100% ultrasonically tested.



# R&D FOR BRUSH GEAR SYSTEMS\*



## 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 PhDs assisted by engineers and technical people.
- They work with 3D software and cutting edge equipment, doing special calculations (electrical, mechanical, finite element analysis...) to optimize the performance of Mersen solutions.
- The Mersen teams benefit from working with an extended network of partners including universities, laboratories, consultants and users to ever improve and innovate our brush gear systems.

## 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 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

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

#### > 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'



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