



TRANSPORTATION

ADVANCED
MATERIALS AND
ELECTRICAL POWER
SOLUTIONS FOR
AERONAUTICS



MATERIAL EXPERTISE FOR HIGH TEMPERATURE AND WEIGHT SAVINGS

As a worldwide leader of high performance materials, Mersen has built over the years an extended experience in the aircraft industry, representing million of hours of operation. Together with industry leaders, Mersen experts work to unlock significant improvements in terms of aircraft weight, fuel consumption, total life cycle costs and aircraft reliability.

ENHANCED SOLUTIONS TO SUPPORT ELECTRIC AIRCRAFT TREND

Optimization of aircraft performance, decrease operating and maintenance costs, increase dispatch reliability, and reduce gas emissions - have underscored the aircraft industry's renewed push toward the concept of electric aircraft. Mersen through its wide range of solutions in Electrical Power supports the industry to fly toward the ambitious future of aviation.



UNIQUE MATERIAL EXPERTISE FOR IMPROVED PERFORMANCE

CARBON AND GRAPHITE

SHAFT SEALS / DYNAMIC SEALS

- Works at high speeds without seizure
- Reduced operation gap / leaks under high temperature conditions
- Possible metal housing for easier integration into the system
- Self-lubricating properties
- No blocking when starting or stopping the system
- No seizing, even after long periods without use
- Possible on-demand design
- Reduced leaks thanks to the optimized design (overlaps, etc.)

GUIDES AND BUSHES FOR PUMPS AND JET ENGINE BLADES

- Self-lubricating properties to reduce friction torques
- Reduced wear
- Operates at temperatures of up to 650°C
- No seizing, even after long periods without use
- Compatible with most aerospace fluids
- Can be impregnated for increased service life
- Can be shrunk-fit for easier integration into the system

CARBON / CARBON COMPOSITE

BRAKE DISKS AND PADS

- Stable friction coefficient
- Reduced wear thanks to the use of composite materials
- High friction coefficient
- Dry or lubricated operation
- Low- and high-energy braking

CARBON

PUMP VANES

- Self-lubricating properties
- No blocking when starting or stopping the system
- Can be impregnated for increased service life
- Dry or lubricated operation at high speeds

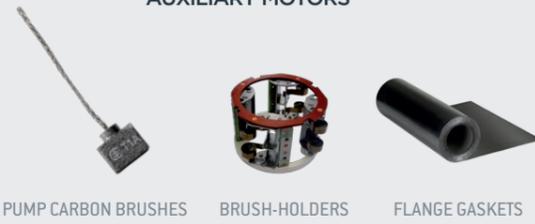
FLEXIBLE GRAPHITE - POPYEX®

FLANGE GASKETS

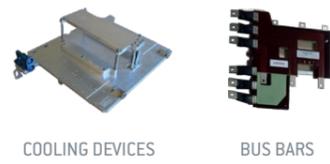
- Excellent properties for use under pressure and temperature
- Not sensitive to thermal shocks
- No ageing: neither shrinkage, nor hardening, nor hot creep
- Practically unlimited chemical resistance
- Non-polluting (asbestos-free)
- Easy to cut and shape

LIFE ON-BOARD

AUXILIARY MOTORS



ELECTRICAL POWER GENERATION AND DISTRIBUTION



AIR CONDITIONING

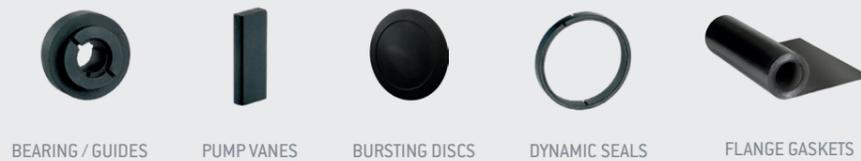


BRAKING

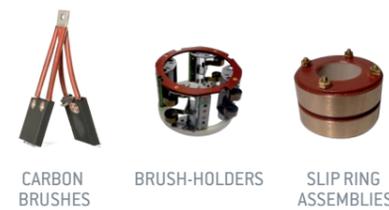


TECHNICAL PERFORMANCE

FLUID CONTROLS



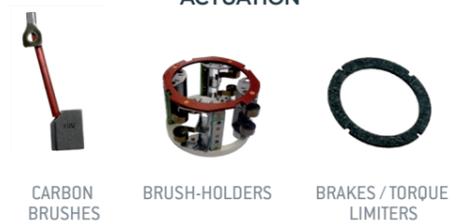
STARTER / GENERATOR



ENGINE COMPONENTS



ACTUATION



ENHANCED SOLUTIONS FOR ELECTRIC AIRCRAFT

COOLING SOLUTIONS FOR POWER ELECTRONICS

AIR HEAT SINK

- Optimised fins assembly technology (Swaging Process – Machining – Vacuum Brazing Process)
- High cooling performances
- Weight saving benefit and Compact design
- Reliability and Long Life time in harsh Environment

LIQUID-COOLED HEATSINK

- Tailor-made optimized solutions using aluminium vacuum-brazing process
- High thermal performance
- High pressure withstanding
- High reliability and lifetime

LAMINATED BUSBARS

LAMINATED BUSBAR FOR POWER ELECTRONICS

- Decrease inductance
- Increase capacitance
- Improve thermal characteristics

LAMINATED BUSBAR FOR POWER DISTRIBUTION

- Cabling function optimization
- Time savings on assembly
- Eliminate wiring errors

LAMINATED BUSBAR TO OPTIMIZE SOLUTIONS (PRINTED CIRCUIT BOARD)

- Increase current density
- Time savings on assembly
- Improved thermal characteristics;
- High resistance on shocks and vibrations

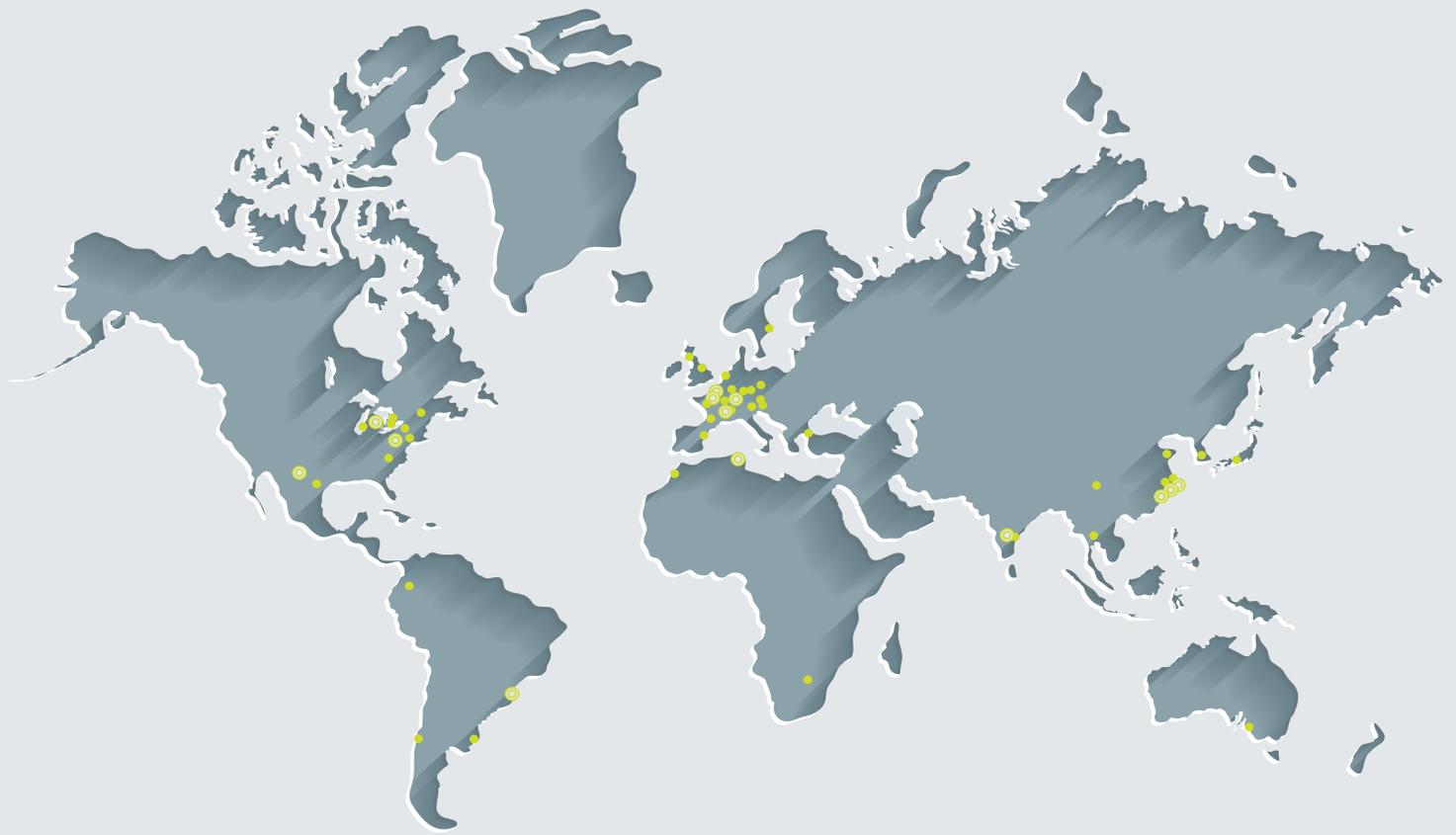
SOLUTIONS FOR ROTATING MACHINES

CARBON BRUSHES

- Four types of graphite grades
 - Impregnated electro graphite (resins/metal salts)
 - Electrographite with MoS₂ cores
 - Carbon graphite enriched with MoS₂
 - Copper graphite enriched with MoS₂
- Tried and trusted riveting techniques
- Wear detection system

BRUSH-HOLDER / SLIP RING ASSEMBLY

- Customized solutions
- Good mechanical stability
- Optimal guidance of the brush
- Optimized distribution of the electric current



GLOBAL EXPERT IN ELECTRICAL
POWER AND ADVANCED MATERIALS

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