

A Wealth of Resources + Global Reach

Comprehensive Support

At Morgan, comprehensive support begins the first time we meet. Our team-based approach – including engineering, sales, customer service and training – sustains you at every level. In addition, we offer a wealth of resources to help you and your business succeed.

Engineering & Design are driven by expert insight into each solution, and we are committed to ongoing improvement, reduced lifetime cost and careful protection of your investment.

On-site Troubleshooting brings qualified, seasoned personnel to your site to provide diagnostic evaluations and creative solutions.

Field Training offers experienced regional sales personnel for onsite brush schools, and resource materials for ongoing education programs.

On-time Delivery, with our second-to-none process, ensures we have the products you need when and where you need them (same day, next day or next week shipping, as required).

Technology Expertise

We're dedicated to innovating value-added solutions by understanding the wind industry-specific needs, opportunities and challenges you face. We know wind turbines, and creating solutions that increase productivity and uptime is our highest priority.



Morgan Carbon is a division of Morgan Crucible, a global advanced materials technology company. We develop, manufacture and market technologically innovative solutions that enhance the performance of our customers' products or optimise our customers' operations.

Global Presence

Morgan offers you a network of engineering and production facilities around the globe. We can offer on-time, highly-engineered electrical turbine products designed to fit your applications – wherever you need them.



The Right Solution for Wind Products

From the piercing cold of Mongolia to the oppressive heat of western US deserts, Morgan is there. We understand the challenges your wind operations face, and our products deliver the right solution for optimising your wind turbine performance.

Learn more about our complete portfolio of proven wind products by contacting your local Morgan representative. Or contact Morgan Customer Service at 0044 (0)1792 763112
meclsales@morgancarbon.com
www.morgancarbon.com

Morganite Electrical Carbon Ltd
Upper Fforest Way
Swansea SA6 8PP
UK

Tri Lap Carbon & Graphite
(Morgan AM&T Vietnam)
Suite 207, C6, Giang Vo, Ba Dinh, Ha Noi.
Tel: +84 4 6683 0666 Fax: +84 4 6263 0666
Email: info@trilap.com.vn
+84 099 599 6060
www.trilap.com.vn

WIND TECHNOLOGIES



WHATEVER THE CONDITIONS,
MORGAN HAS YOU COVERED

www.morgancarbon.com
www.trilap.com.vn

WIND TECHNOLOGIES

Morgan Wind technologies understand the extreme diversities of the global environment and we fashion parts that thrive in these demanding climates.

Our proven, field-tested electrical components — application-specific brushes and holders, power slip rings and pitch control slip rings — are backed by unmatched application engineering, service and global reach.

Designed for the Challenge

No matter its environment, the heart of a wind turbine's performance is its generator. For over 100 years, Morgan has provided successful, engineered solutions designed to optimise generator performance for virtually any type of climate. With millions of in-field applications in our portfolio, we bring you an extensive knowledge base and a range of brush material grades suited for the harsh environments where wind turbines operate. Arid deserts, Sub-zero tundra, Corrosive high-humidity seashores. None of these are a match for Morgan's superior materials.

When specifying for extreme environments, it is important to select materials formulated to maximise film formation between brush and slip rings, since that film is critical for extended brush life, protected slip-ring surfaces and reduced friction. Morgan's global brush grades are created to be environment specific, offering maximised performance in low or high load conditions. Our brushes are engineered to perform well in low-humidity atmospheres, a common setting for many wind farms. Our power slip rings and hub control slip rings are equally robust, given their crucial role in turbine performance.

Engineered Solutions

Aegis™

Wind Turbine Bearing Protection Ring™

- Protects wind turbine generators from catastrophic bearing failure
- Safely channels harmful shaft voltages to ground
- Easily retrofit during bearing change maintenance
- Proven design-Engineered for any size wind turbine generator

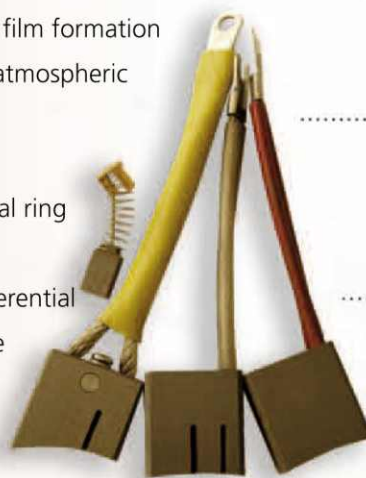


Brushes

Supported by our intimate understanding of carbon and graphite materials science, our globally-located, world-class manufacturing and testing facilities, and our legacy of extensive application knowledge, Morgan brushes set the standard for operations with superior performance.

Morgan brushes feature:

- exceptional performance from no-load to high-load
- low friction through superior film formation endurance through extreme atmospheric conditions and low humidity
- contamination tolerance
- excellent lifespan with minimal ring wear
- low brush-to-brush wear differential
- engineering and performance specific to your application



Selecting the correct carbon brush for your application can reduce slip ring wear, maximise brush life and contribute to outstanding generator performance. Our experienced application engineers can help you select the correct grade and design for your needs.

Power Slip Rings

Providing rotary performance built to handle any environmental condition on Earth, Morgan power slip rings feature:

- moulded or built-up capabilities
- availability in steel, stainless steel, bronze or cupro nickel
- testing for high potential, overspeed, temperature extremes and more
- cost-efficient design
- complimentary quality brush holder and riggings
- availability from manufacturing plants across the globe
- design specific to your application



Hub Control Slip Rings

Morgan's rotary transfer systems are developed through our decades of experience in European markets. Each modular system includes advanced wire systems, slip rings, metal contacts, metal-graphite brushes and other components engineered to suite any wind application. Each features:

- a lifetime of 10 years or 70 million rotations
- 5 years' free maintenance and lubrication
- data transmission capacity up to 400MBd
- shock and vibration resistance
- hybrid systems utilising metal-graphite brushes
- availability with fibre optic rotary joints

