

SUPERIOR PERFORMANCE & RELIABILITY

# WIND ENERGY

BRUSHES & HOLDERS



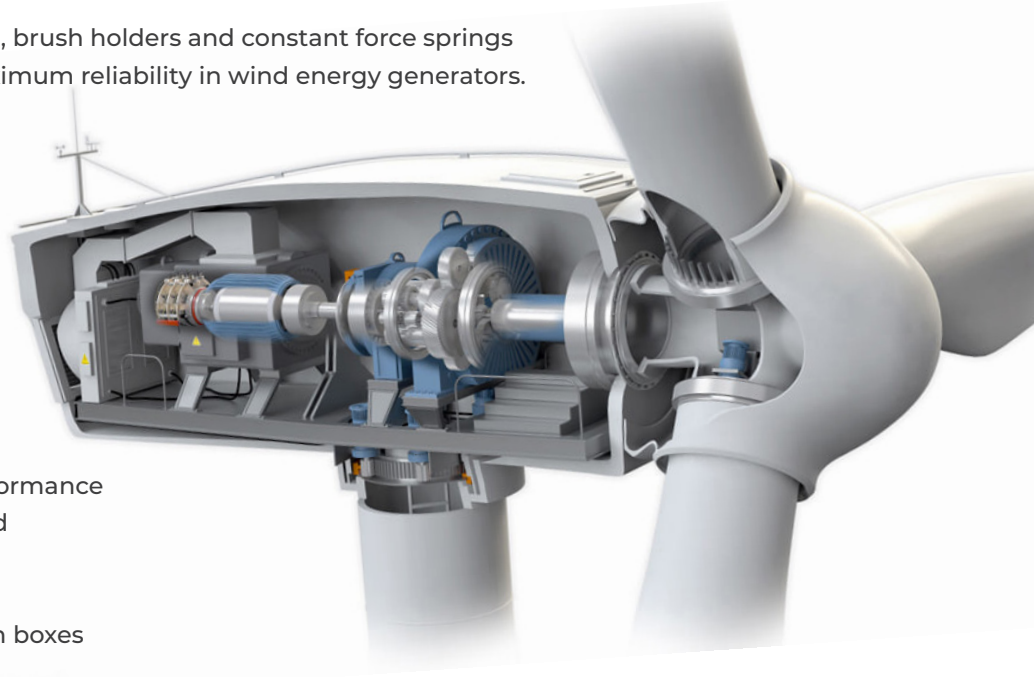
[helwigcarbon.com](http://helwigcarbon.com)





# HIGH QUALITY PRODUCTS FOR WIND ENERGY

Helwig Carbon brushes, brush holders and constant force springs are engineered for maximum reliability in wind energy generators.



## HEAVY DUTY BRUSH HOLDERS

- Robust design exceeds OEM performance
- Custom designed and engineered with exclusive features for all turbine applications
- Replaceable and adjustable brush boxes

## CONSTANT FORCE SPRING

- Allows for direct replacement of original spring
- Optional wear indicator device lets you see at a glance that it's time to replace the brush
- Improved design extends brush life by applying consistent pressure at the brush face



## HELWIG QUICK DISCONNECT™ (HQD)

- Features Helwig Quick Disconnect™ for quick, easy replacement - does not require nuts or bolts to hold terminal in place
- Fast, easy brush changes with tight, positive locking action that holds fast even under the roughest conditions



## HELWIG CARBON ADVANTAGES

- Replaceable and adjustable brush holders
- Longer brush boxes for better brush support
- Simplified wiring harnesses
- Helwig Quick Disconnect (HQD) for faster brush changes
- Replaceable consistent force springs
- Teflon spacers to protect ring phases
- Easy to install
- OEM approved generator brushes

# UPGRADES

## FOR WIND GENERATORS



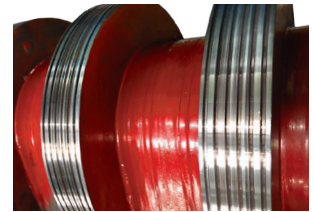
- **Improved performance**
- **Easier maintenance**
- **Extended brush life**
- **Custom engineered**

## GENERATOR BRUSHES



These special long-life grades virtually eliminate dusting and ring groove problems. Approved for use in Winergy, Hitachi, ABB, Marathon and other generators.

## SLIP RING BRUSHES



Reduce ring wear with brushes engineered for extreme environments including:

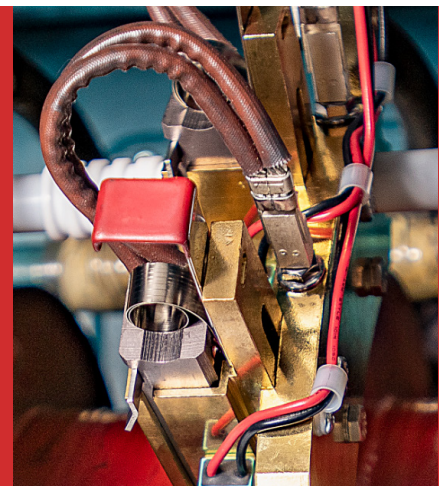
- Heat
- High altitude
- Low humidity
- High humidity
- OEM approved



## LIGHTENING PROTECTION AND GROUNDING BRUSHES

- Durable grades, ensures longer brush life
- Provides superior performance and protection against high surge occurrences.

- **Extensive experience in wind applications**
- **Custom engineered wind solutions**
- **Trained up-tower engineering support**
- **Made in USA**
- **Problem diagnosis and recommendations**
- **ISO 9001 certified for design and manufacturing**
- **Over 1,000 stock brush designs available for same day shipment**

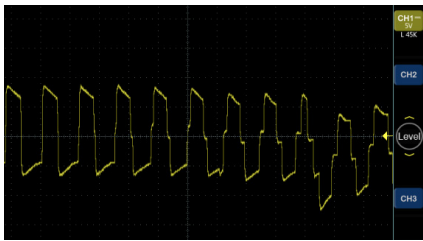


## WIND GENERATOR PITCH MOTOR BEARING PROTECTION

Silver graphite brushes are used to conduct induced shaft currents to ground to **protect the pitch motor bearings from premature failure and costly replacement.** Helwig Carbon engineered a special solution for this application that has become OEM approved and installed throughout the world.



### UNPROTECTED



*The unprotected motor experienced 8 V peak-to-peak discharges.*

### PROTECTED BY THE HELWIG BPK



*Peak-to-Peak Voltage  
<1V*

**92%**  
**LESS**

**PEAK-TO-PEAK  
VOLTAGE**

When you compare oscilloscope images, it's easy to see the range of impact that electrical discharges can have on unprotected motor bearings. **Over time, it adds up!** Installing Helwig Carbon Pitch Motor Bearing Protection on your wind pitch motor will mean longer motor life, less downtime, and fewer up-tower repairs.

## ABOUT HELWIG CARBON

Helwig Carbon Products can engineer a brush and holder solution for virtually any sliding electrical contact circuit. In addition to carbon graphite brushes, we also manufacture silver graphite and other metalized graphite solutions. Proud to be American-owned for nearly 100 years.



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LIT-BRO-500