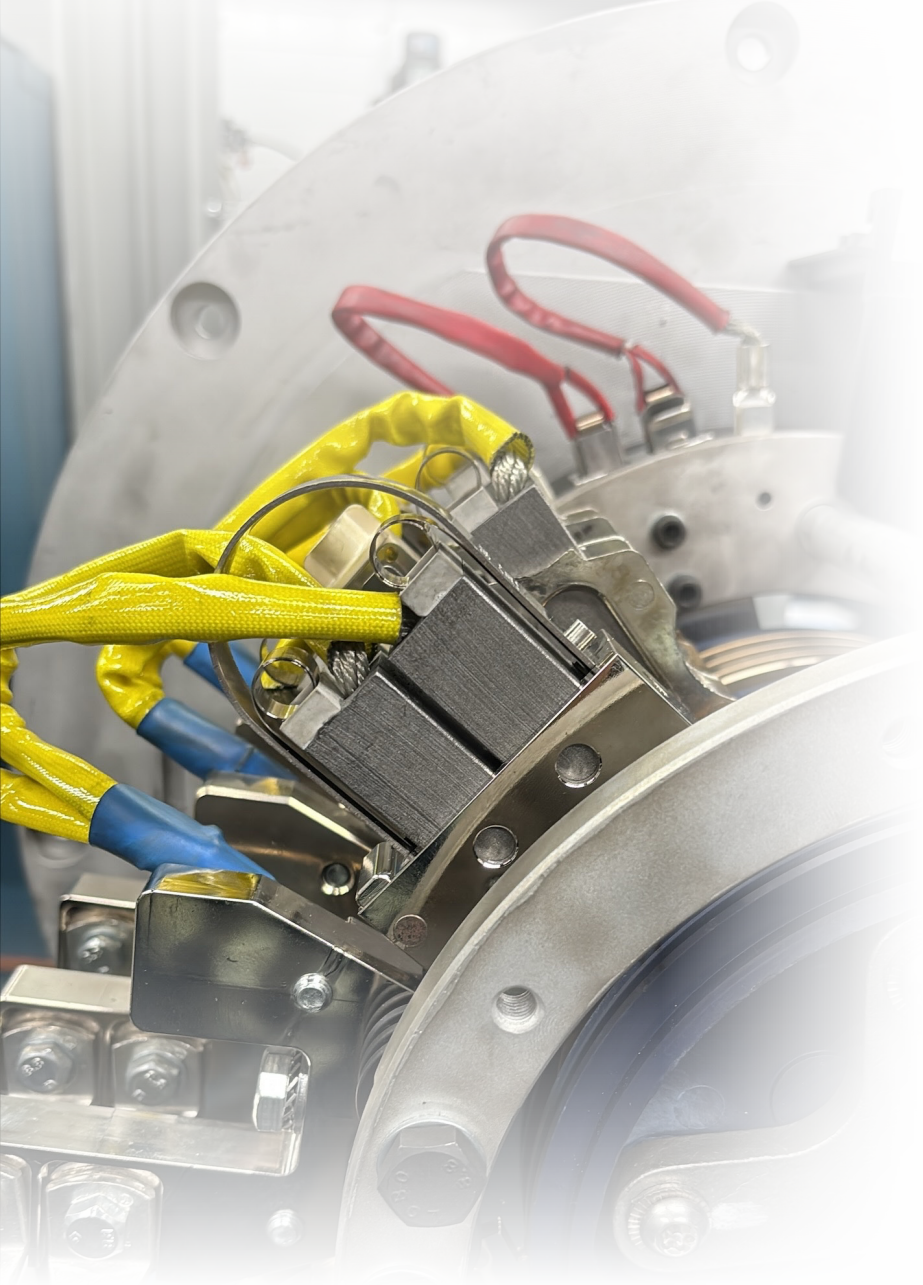


# Advanced Brush Gear Upgrade for Vestas Turbines

Upgrade Solutions for Vestas 2MW Platforms



With decades of Vestas application expertise and a proven track record in OEM compatible solutions, Morgan delivers an optimized brush gear system designed for enhanced reliability and service efficiency. Fully compatible with Morgan's latest innovation National™ S22 silver brush grade for high performance.

#### Other Vestas Platform Upgrades

- V52-V90 'Caliper' Holder Upgrade (with/without limit switches)
- V90 3MW Upgrade
- V100/V110 Upgrade see full brochure for details

#### We fix three key problems:

- Brush tops separating from brush material
- Springs difficult to install – coils stress & deform
- Brush holder bodies breaking down

# What We Fix

## 1. Brush tops separating from brush material

(OEM brush tops fail causing premature brush replacement)

- Solution: Improved top design, increased bonding area
- Result: No bonding failures or premature brush replacements

## 2. Springs difficult to install – coils stress & deform

(OEM design pulls spring coils out of natural position, risking incorrect load)

- Solution: Improved backplate design – coils place force in proper direction of brush movement
- Result: Correct spring-load over full brush length (proven on V90)

## 3. Brush holder bodies breaking down

(OEM fabricated design causes tolerance variability, wear, and breakdown)

- Solution: Cast and broached body
- Result: Robust, consistent tolerances, longer life



# Key System Benefits

More consistent brush pressure, stability and current sharing

- Improved brush performance and slip ring condition.
- Greater ease of installation

Brush Terminal and Top Improvements	Upgraded Holder & Spring Design
<ul style="list-style-type: none"> <li>• Open terminal design on phase - EZ tool free plug in ground</li> </ul>	<ul style="list-style-type: none"> <li>• Holder plug &amp; play installation</li> </ul>
<ul style="list-style-type: none"> <li>• Complete removal of bolt is no longer required</li> </ul>	<ul style="list-style-type: none"> <li>• Easy spring removal / install</li> </ul>
<ul style="list-style-type: none"> <li>• Easier brush changes – no dropped parts</li> </ul>	<ul style="list-style-type: none"> <li>• Improved brush support and stability via holder solid body construction</li> </ul>
<ul style="list-style-type: none"> <li>• Redesigned top prevents separation from brush material</li> </ul>	<ul style="list-style-type: none"> <li>• Proper spring force aligned with brush movement</li> </ul>
<ul style="list-style-type: none"> <li>• Revised flexes and connections improve clearance for spring coil and insulation</li> </ul>	<ul style="list-style-type: none"> <li>• Constant spring force is equal between brushes for more consistent wear</li> </ul>
<ul style="list-style-type: none"> <li>• Specialized spring pocket, contains coil, prevents spring barreling</li> </ul>	<ul style="list-style-type: none"> <li>• Fewer components, no loose parts-improved reliability</li> </ul>

With a global footprint, we bring local expertise and worldwide reach to every corner of your business. Reach out to our global team of experts today!

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