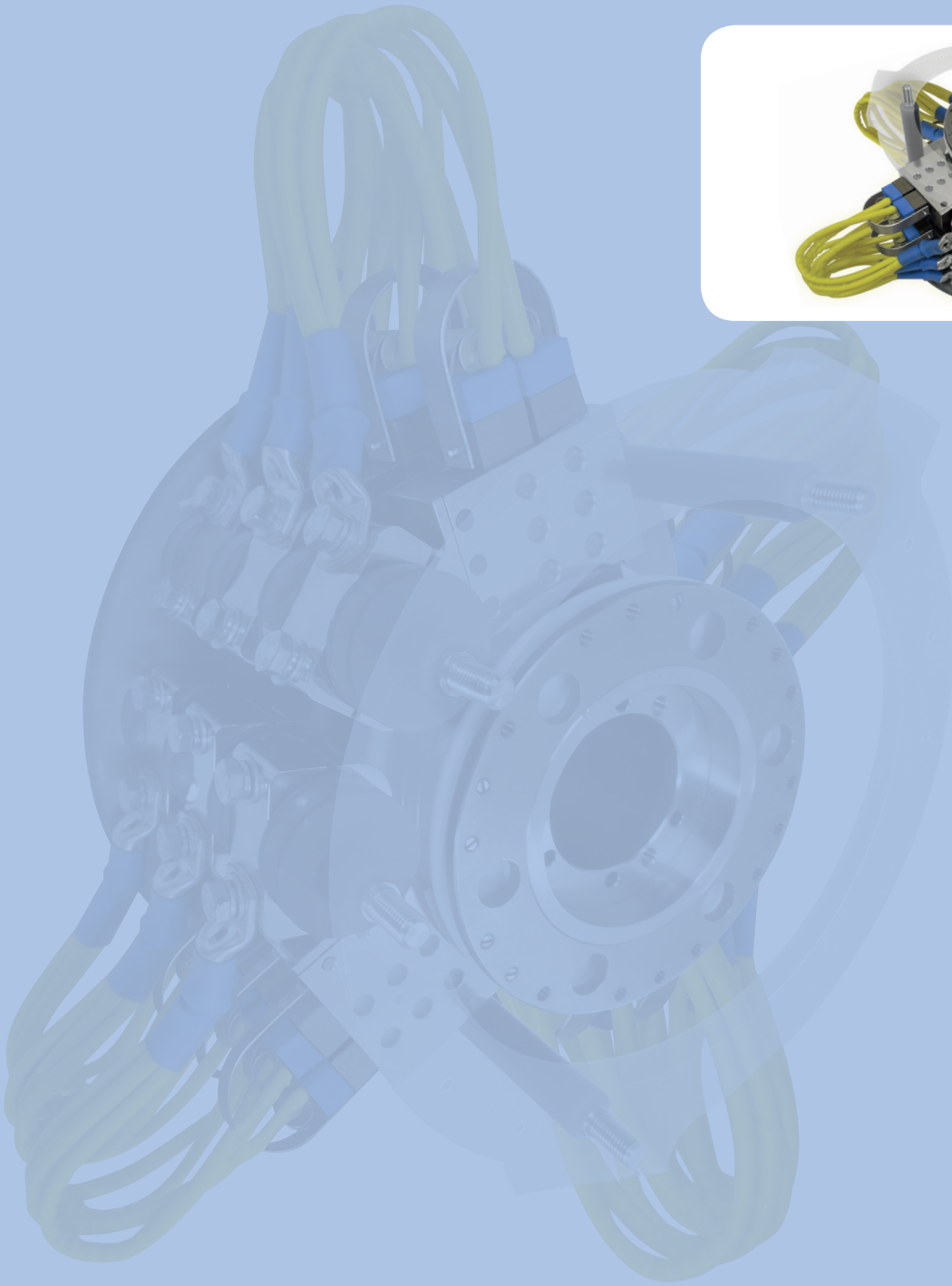


Vestas Wind Turbine Brush Gear Upgrades



Rev 2. Eng.

V52-V90 Morgan Caliper Holders

Morgan offer a full range of OEM equivalent* brushgear components to cater for your maintenance needs.

Our range includes, but is not limited to:

- Phase Brushes 753246
- Phase Caliper Holders 753247
- Brush Gear Cage Rod Insulator 753074, 753075
- Earthing Brushes NDE 753366
- Earthing Brush NDE c/w Holder 753347
- Earthing Brush DE 753741
- Current Clamp 753656
- Sliprings, Multi-Fit Hubs to suit all generators types.



V52-V90 Morgan 'Caliper' Holder Upgrade

Morgan offer an upgraded brush holder system to replace the standard caliper design. This provides significant benefits:



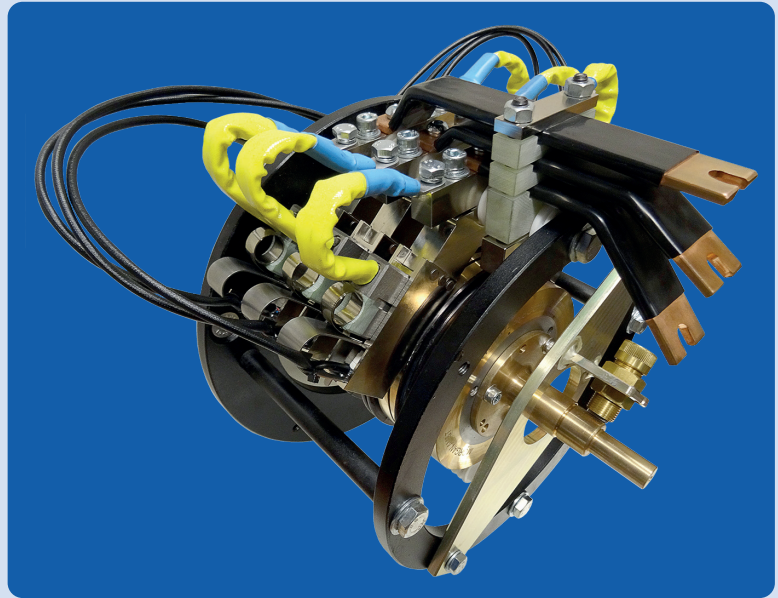
- Double the useable brush length, reduces brush change out periods. Over 5 years brush life!
- Constant force spring system offers stable pressure over the full useable brush length, reducing selective action and improving brush life overall
- Reduced slipring wear
- Simplified brush changes as armature leads are no longer obscuring the brushgear
- System includes brushes, holders, bus bars and spindles
- Nickel plated holder system for both onshore and offshore applications
- Plug and Play system no modifications required to the generator, designed for simple replacement of standard system

V52-V90 Morgan 'Caliper' Holder Upgrade with Limit Switches

Morgan also offer an upgraded brush holder system complete with brush wear limit switches.

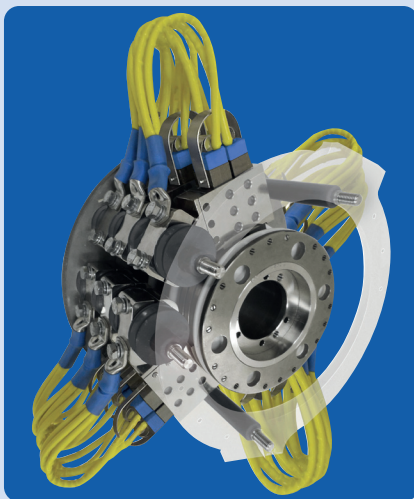
This system offers all of the benefits of our standard upgrade with an added degree of protection.

This system is particularly suited for equipment that is not easily accessible and offers advanced warning of brush maintenance requirements.



V90 3MW Morgan Upgrade

Morgan have optimised the brush and holder system to provide a step change in generator reliability. Our system provides:



- Significant reduction in slipping wear and damage
- Significant improvement in brush life
- Improved brush support and stability
- Optimised brush length to reduce unit cost
- Reduction in brush current density leading to lower losses and brush operating temperatures
- Improved brush pressure system to give correct spring coil location
- Simplified unobstructed brush replacement
- System produced to recognised International Standards for brush and holder tolerances

Overall the system offers significant improvements over original parts and is ultimately self-financing in a very short time period.

ABOUT MORGAN ADVANCED MATERIALS



Morgan Advanced Materials is a global engineering company offering world-leading competencies in materials science, specialist manufacturing and applications engineering.

We focus our resources on the delivery of products that help our customers to solve technically challenging Problems, enabling them to address global trends such as energy demand, advances in healthcare and environmental sustainability.

What differentiates us?

Advanced material science and processing capabilities. Extensive applications engineering experience. A strong history of innovation and reinvention. Consistent and reliable performance. A truly global footprint. We find and invest in the best people.

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