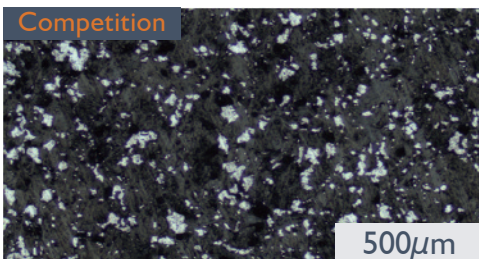
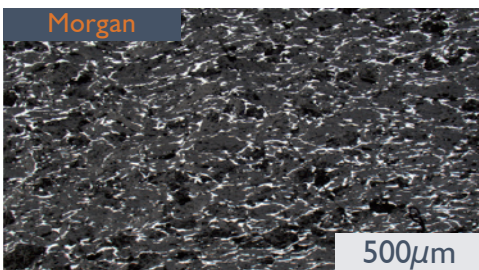


Innovative and customized solutions  
for wind power generation

## Introducing National™ S22:

Morgan Advanced Materials' Latest  
High Performance Silver Brush Grade



Morgan Advanced Materials offers the proven S4149 material grade for Vestas Wind turbine applications and we have enhanced our materials portfolio with the development of the advanced **National™ S22** grade.

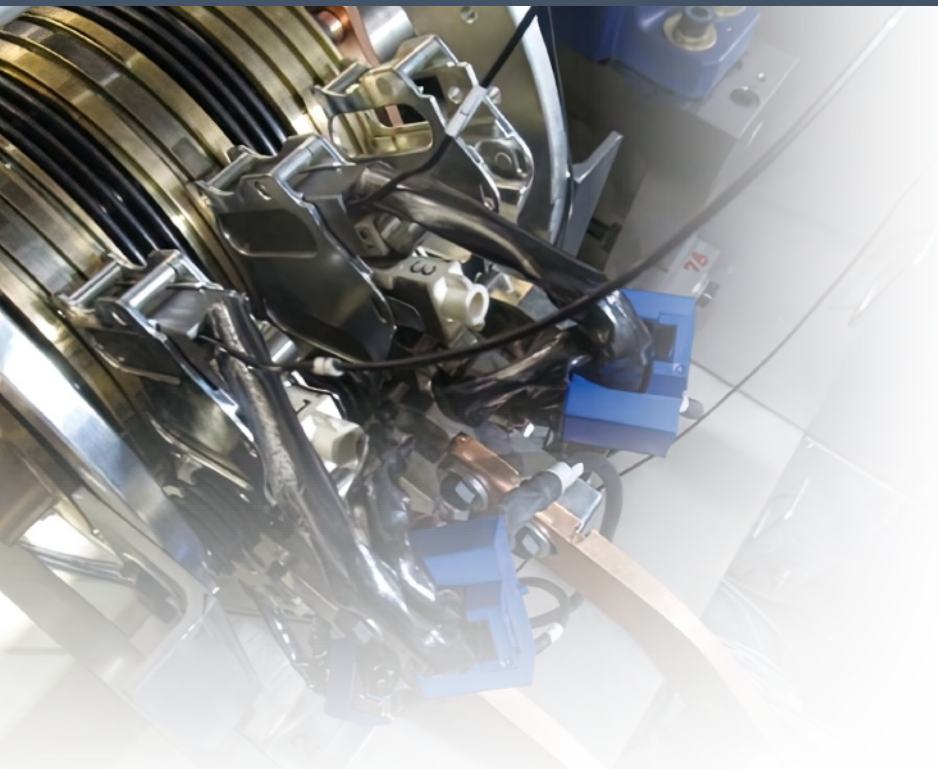
**National™ S22** maintains the high-performance standards of the higher silver content brushes. Thanks to our team of advanced material scientists, Morgan's latest material development forms metal channels, delivering conductivity advantages compared to competitor's silver islands which route electricity through less conductive graphite.



Website

# Introducing National™ S22:

Morgan Advanced Materials' Latest High Performance Silver Brush Grade



Advanced application-specific testing with real-world field conditions

## Testing covers:

- Variety of environmental conditions
- Range of operation conditions
- Brush wear and other performance indicating data

National™ S22, the newest addition to our family of National™ grades for Wind applications.

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!

## EUROPE - EMEA:

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Nominal Values of Carbon Brushes in Global Wind Turbine Applications

	Grade	Continuous Current Rating		Continuous Speed Rating		Resistivity		Bulk Density	Common Application
		A/cm <sup>2</sup>	A/in <sup>2</sup>	m/s	ft/s	μΩm	10 <sup>-4</sup> Ωin		
Phase Brushes	MG1147	18	118	45	148	3.20	1.26	2.95	Steel Rings, High Wind, Standard Environments
	LL587	18	118	30	98	1.77	0.70	3.26	Optimal life, Steel Rings, All Environments
	M50BR	18	118	30	98	2.00	0.79	3.20	Optimal life, Bronze Rings, All Environments
	M50X	21	135	30	98	1.78	0.70	3.15	Optimal Life, Bronze and Steel Rings
	S4149	30	193	30	98	0.25	0.10	3.70	High Load Silver Grade, All Environments.
	S22	21	135	30	98	0.51	0.20	2.68	Silver Grade, All Environments



Website