



# Schunk Products for Wind Turbines



Schunk Kohlenstofftechnik GmbH  
Schunk Bahn- und Industrietechnik GmbH



# Schunk Products for Wind Turbines

## Schunk manufactures for Wind Turbines

- Carbon Brushes
- Brush Holders
- Brush Rockers
- Slip Rings
- Lightning Protection Systems
- Shaft Grounding Units (also for Synchronous Generators)
- Flexible Current Connectors



*Slip Ring Unit*



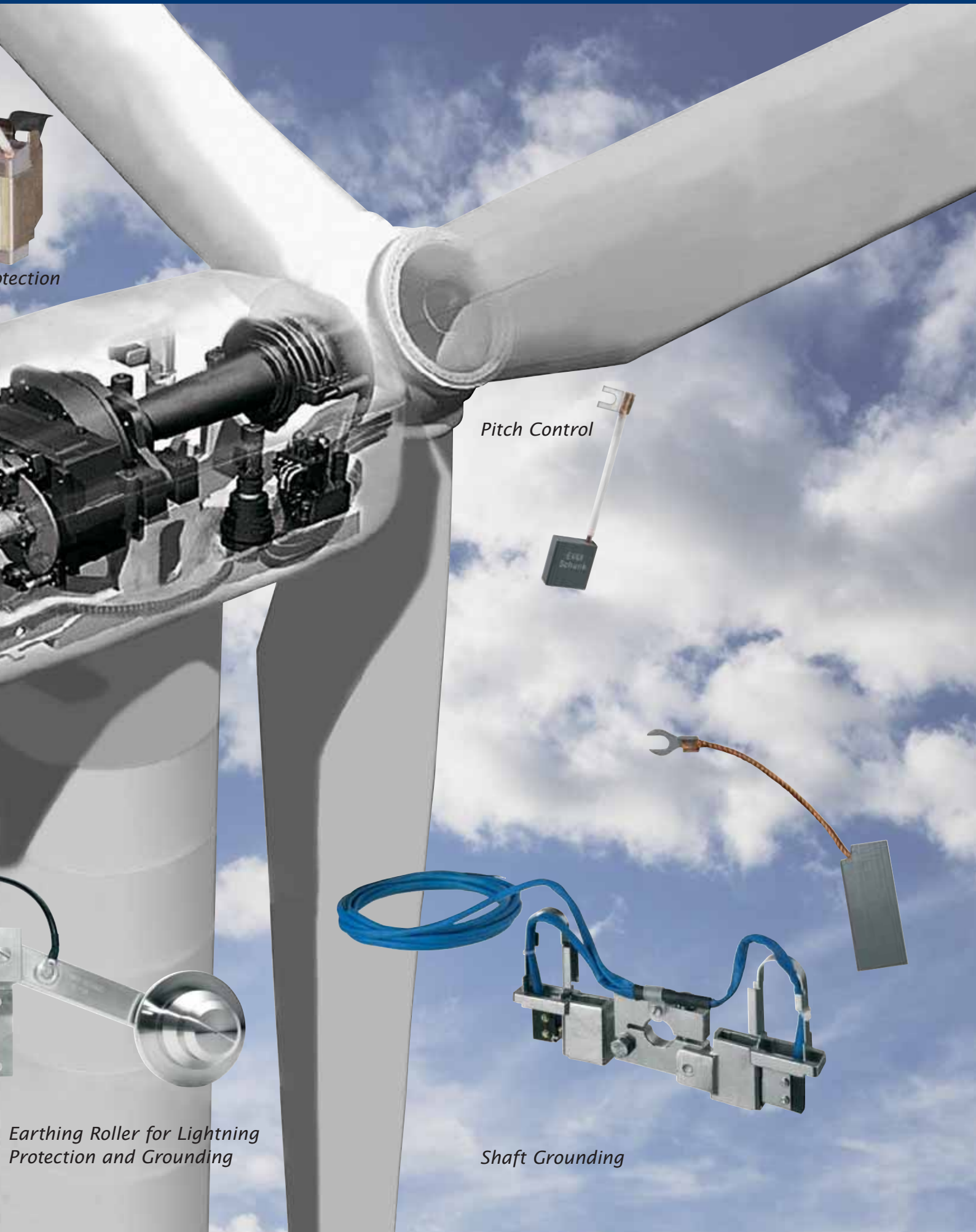
*Lightning Protection*



*Brush Holder*

*Carbon Brush*





*Lightning Protection*

*Pitch Control*

*Earthing Roller for Lightning Protection and Grounding*

*Shaft Grounding*

# Overview of our Product Range



**Brush Rockers**  
*in customized design for generators*



**Special Brush Rockers**  
*for 3.4 MW generators with radial blowers*



**Slip Rings**  
*up to 1,500 A and more than 3,000 rpm overspeed*



**Power Brushes**



**Grounding Brushes**



**Lightning Protection Brushes**



# Grade Recommendations – Wind Power

## Wind generators

Grade	Metal content %	Optimal permanent current density		Max. permanent speed*		Remarks
		A/in <sup>2</sup>	A/cm <sup>2</sup>	ft/s	m/s	
C72	28	92	14	131	40	For low electrical loads
A41X	37	118	18	131	40	For low humidity
A24X	40	118	18	131	40	Standard grade, ring saving
C80	53	131	20	115	35	Suitable for brass, bronze and steel rings
C80X	53	131	20	115	35	Improved wear resistance
S13	60	144	22	115	35	Lowest electrical losses
K14Z3	63	144	22	115	35	Low electrical losses
E43	-	65	10	164	50	For carbon/carbon units

\* On helically grooved rings only

## Shaft grounding

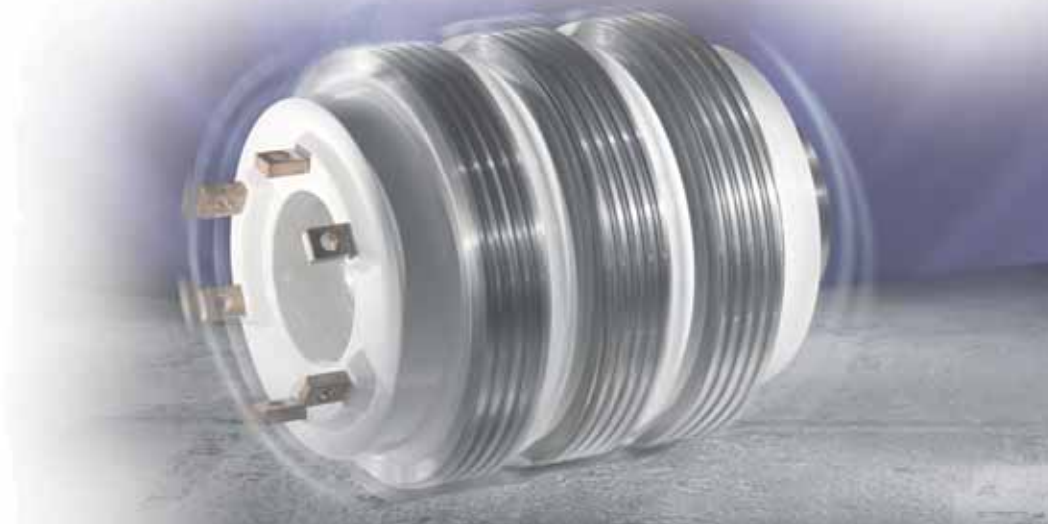
Grade	Metal content %	Optimal permanent current density		Max. permanent speed		Remarks
		A/in <sup>2</sup>	A/cm <sup>2</sup>	ft/s	m/s	
A24X	40	-	-	131	40	Standard for 4 <sup>th</sup> ring (steel)
S13/F19	60/-	-	-	115	35	Sandwich design, standard combination
B24	90	-	-	115	35	Excellent film control
C40Z3	75	-	-	115	35	Excellent film control

## Lightning protection – our designs are approved up to 150 kA (with special spark gap up to 200 kA)

Grade	Metal content %	Optimal permanent current density		Max. permanent speed		Remarks
		A/in <sup>2</sup>	A/cm <sup>2</sup>	ft/s	m/s	
A20	50	-	-	-	-	Standard grade
K14Z3	63	-	-	-	-	Standard grade
C40Z3	75	-	-	-	-	For polluted ambience
E43	-	-	-	-	-	For offshore application

## Pitch control

Grade	Metal content %	Optimal permanent current density		Max. permanent speed		Remarks
		A/in <sup>2</sup>	A/cm <sup>2</sup>	ft/s	m/s	
E46X	-	78	12	164	50	Standard grade
E105	-	78	12	164	50	Improved commutation



## Schunk Competence-Center

Schunk is your design and development partner in special demands for wind power systems.

We are your one-stop source for customized solutions such as design and development, production, assembly, sales and applications engineering.

Schunk manufactures e.g.

- Carbon Brushes
- Brush Holders
- Brush Rockers
- Slip Rings
- Lightning Protection Systems
- Shaft Grounding Units  
(also for Synchronous Generators)
- Flexible Current Connectors

Our subsidiaries worldwide offer you a competent and fast service of a global company.

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