

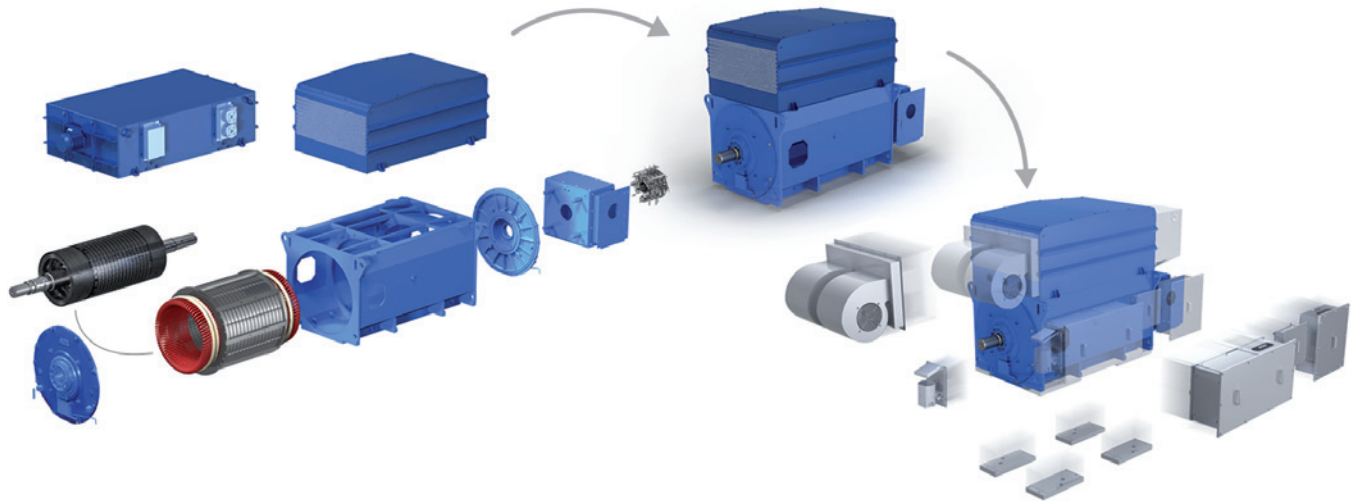


Brochure

# Wind turbine generators

## New standard slip ring generator series for the doubly-fed 1.5 – 2 MW turbines

Featuring an enhanced rotor design, ABB's new wind power generators are designed to fit most 1.5 – 2.0 MW doubly-fed turbines of today.

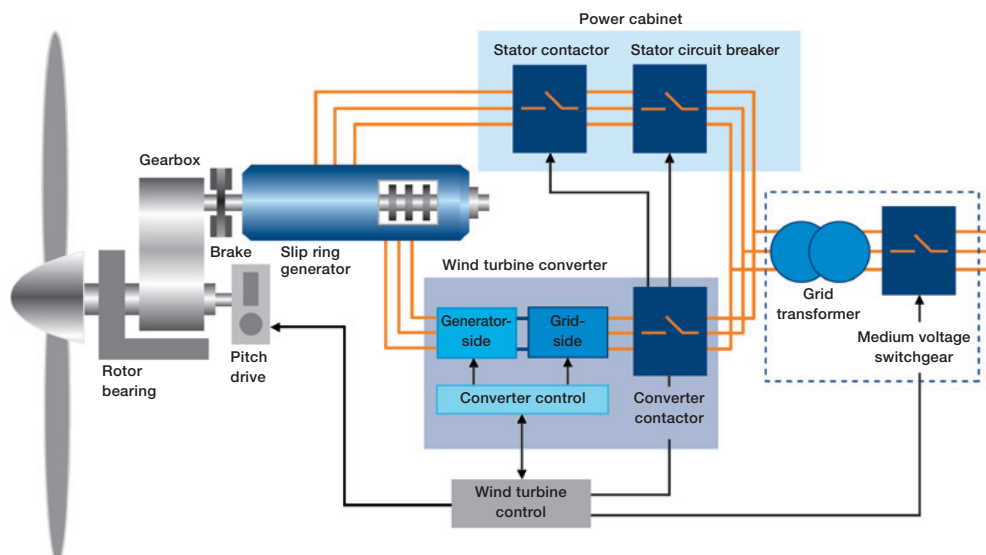


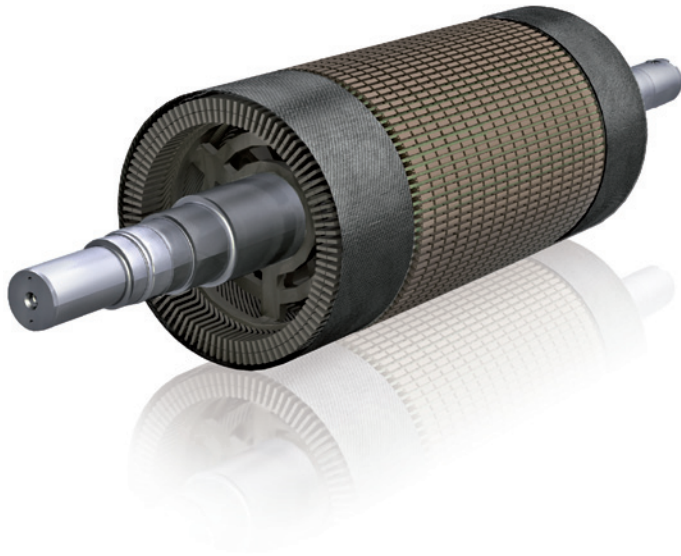
- Standard design for 1.5 – 2.0 MW turbines – with both air or water cooling
- Modular component structure – to fit in most turbines used today
- Customer specific modifications – for different interface connections
- New improved rotor design – to withstand overspeeds and voltage peaks

**The Doubly-fed (DF) generator concept (Cascade drive)**

The DF generator is a wound rotor asynchronous machine, with the rotor windings connected to a small converter via slip-rings and brushes. The generator feeds power both from the directly connected stator (approx. 2/3 of  $P_n$ ) and the

rotor (approx. 1/3 of  $P_n$ ). The converter enables control of the generator speed, power and power factor, thus giving a wider speed range for production and providing the ability to feed reactive power to support the grid.





#### New ABB rotor design:

Patented carbon-fiber winding-end support rings  
– to withstand sudden uncontrolled overspeeds

Increased insulation level (2.5 kV)  
– to match most converter designs

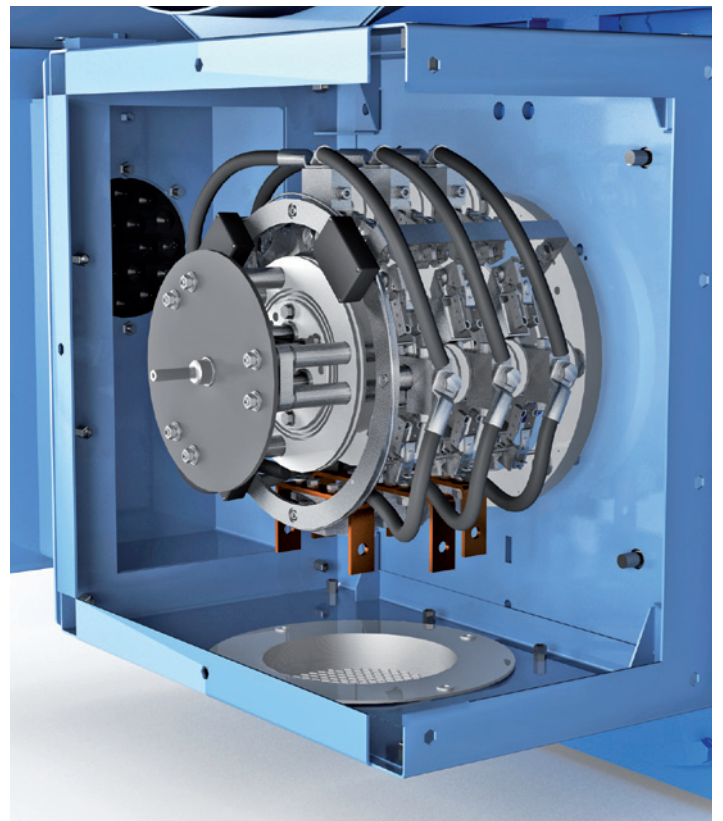
Minimized Total Harmonic Distortion (THD)  
– especially 5<sup>th</sup> and 7<sup>th</sup> order

Improved cooling  
– for continuous reactive power production

#### Performance characteristics of the new AMK500 series:

Power	1.57 MW and 2.1 MW
Cooling	IC 616 or IC 86W
Mounting and protection	IM1001 (inclined 4..8 deg), IP54
Voltage	690 V +/-10%, 50 or 60 Hz
Rotor current	less than 800 A
Locked rotor voltage	approx. 1800 V or 2000 V
Rated speed	1750 rpm
Operation speed range	1000 ... 2000 rpm
Max. overspeed	3000 rpm
Power factor	p.f. 0.90 cap...1.0...0.90 ind
Insulation class/Temp. rise	F/B (at Un, p.f. 0.95 cap and 40°C)
Temperature range	-20°C ... +40°C; extended -30°C ... +50°C
Max dimensions, weight	L3150 x W1600 x H1850 mm, max 6–6.7 tn

Proven ABB solutions provide continuous operation for maximum energy production with lowest lifetime cost.



#### Proven ABB slip ring design:

Specialized production know-how  
– from leading slip ring manufacturers

Reliable construction through joint development  
– half a century ABB in-house design expertise

Superior cooling air circulation  
– for continuous reactive power production

#### Your reliable partner

ABB is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 117 000 people.

In the wind power sector, ABB is the largest worldwide supplier of electrical solutions and the market and technology leader in generators, converters, motors, circuit breakers & contactors, transformers and HVDC.

ABB is the global leader in generators for wind turbines with over 30 years of experience and 30 000 generators delivered. ABB built its first megawatt class doubly-fed generator in 1997, based on more than 100 years of experience in electrical machines (since 1889).

For more information: [www.abb.com/motors&generators](http://www.abb.com/motors&generators)

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