



SG 5.2-165
Building America's energy future



Delivering on our promise to the American market

The SG 5.2-165 high capacity factor turbine has the right rotor and nameplate to enhance revenues and take advantage of the most common U.S. wind conditions

Siemens Gamesa,
your technology
partner

Siemens Gamesa, committed to the energy transition and sustainable performance, drives the development and continuous improvement of advanced products specifically designed to meet the needs of every customer. Our mission is to offer cutting-edge technological solutions that optimize the LCoE, ensuring sustainable returns throughout the entire lifecycle of the project.

For this reason, we offer a catalog of solutions adapted to every type of site and condition, backed by:

- Our reputation as a stable partner (nearly 146 GW installed and over 91 GW maintained worldwide).
- A track record spanning more than 40 years.
- The recognition of the wind power sector.

Designed for the U.S. market

Siemens Gamesa's High Capacity Factor (HNCF) SG 5.2-165 wind turbine has been developed based on the needs of those customers developing projects in the U.S. wind power market. The turbine has the right design profile to produce revenue by harnessing the wind conditions most common in the U.S., and features a design lifetime longer than the industry standard.

Development of the SG 5.2-165 turbine represents Siemens Gamesa's commitment to create value for our customers through the continuous development of technologies that improve performance and competitiveness. The model leverages both established product design and technologies to lower costs and streamline constructability.

Siemens Gamesa solution for your project site

The SG 5.2-165 turbine delivers a nominal power of 5.2 MW. This model is well-adapted to harnessing the available wind potential at every site. Depending on the noise requirements, temperature, and electrical properties of the project, power delivery and performance can be enhanced using Siemens Gamesa's Optimaflex® flexible power rating resulting in a flexible and versatile product.

The SG 5.2-165 incorporates a combination of a three-stage gearbox (two planetary stages and one parallel), and a full scale converter. The passive cooler outside the nacelle and the cabinet's improved ventilation ensures efficient thermal conditioning and performance at higher temperature sites. The model has several features that make it a first choice for projects that require an HNCF solution:

- Designed to support IRA domestic content requirements.
- IntegralBlade® technology including aero-performance boosters DinoTails® and DinoShells®.
- Single-piece blade, main components transportable by rail.
- Drivetrain delivered to site fully assembled.
- US focused trucking envelope to improve transport costs
- Spacious rotor hub eases serviceability.
- Efficient yaw system with high retention and orientation capacity.

Blade design

At a length of 81 m, the fiberglass reinforced with pultruded carbon fiber blade is suited for IEC Class S winds and has blade aerodynamics designed by our blade design team in Boulder, Colorado.

The blade is made with our IntegralBlade® technology including aero-performance enhancers DinoTails® and DinoShells®. The combination of airfoils in the blade design creates a balance of AEP, loads distribution and noise.

A high capacity factor turbine designed to enhance revenue by harnessing the wind conditions common in the U.S.

Technical specifications



General details	
Rated power	5.2 MW
IEC class	II/S (25 years lifetime)
Flexible power rating	Site specific
Control	Pitch regulation with variable speed
Standard operating temperature	Range from -20°C to 45°C (with de-rating) ⁽¹⁾
Technology	Geared + Full Converter

Rotor	
Diameter	165 m
Swept area	21,383 m ²
Power density	243 W/m ²

Blades	
Length	81 m
Airfoils	Siemens Gamesa proprietary
Material	Fiberglass infusion and carbon pultruded-molded components

Gearbox	
Type	3 stages

Generator	
Type	Full Scale Converter
Voltage	690 V AC
Frequency	60 Hz
Lightning protection class	LPL 1
Power factor	± 0.90 Cos Phi ⁽²⁾

⁽¹⁾ Different versions and optional kits are available to adapt machinery to cold climate, saline or dusty environments.

⁽²⁾ Power factor at generator output terminals, on low voltage side before transformer input terminals.

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