

## A New Generation Onshore MSPM Smart Wind Turbine

Powering the Future of  
Renewable Energy

## Introducing Our Next-Generation Medium-Speed Permanent Magnet Platform

Delivering Unmatched Reliability, Efficiency, and Performance

### Product Features

#### More Reliable

Designed for superior durability and long-term performance, our advanced wind turbine platform integrates cutting-edge drivetrain technology, including double tapered roller bearings, a middle-speed planetary gearbox, and a coupler-free, slip ring-free design. The double tapered roller bearing drivetrain effectively decouples torque and bending moments from the rotor, allowing the gearbox to operate under pure torque conditions. This significantly enhances gearbox reliability, minimizing maintenance and maximizing uptime and ensuring consistent performance even under demanding operational conditions.

#### More Economical

With a 182-meter rotor diameter and a 5.3MW rated output, our new wind turbine platform delivers a substantial increase in power generation capacity. Compared to the previous generation, the larger rotor size and higher rated output power result in up to a 10% increase in Annual Energy Production (AEP) and a reduction in the Levelized Cost of Energy (LCoE). The integration of smart control technologies, including yaw correction, field-level control, and energy consumption optimization, further enhances power generation efficiency, making it a cost-effective solution for renewable energy projects.

#### More Friendly

Our 5.3MW wind turbine features a permanent magnet synchronous generator and a full-scale converter, inheriting the exceptional grid-connection performance of the PMDD platform. This includes faster dispatch response, more precise active power/frequency and reactive power/voltage control, and smoother fault voltage ride-through capabilities. Additionally, the platform offers environmentally and engineering-friendly technical options such as shadow control, noise control, single blade installation, and separated installation, ensuring minimal environmental impact and greater flexibility in deployment.

### Intelligent all-round upgrade

#### Smart Perception

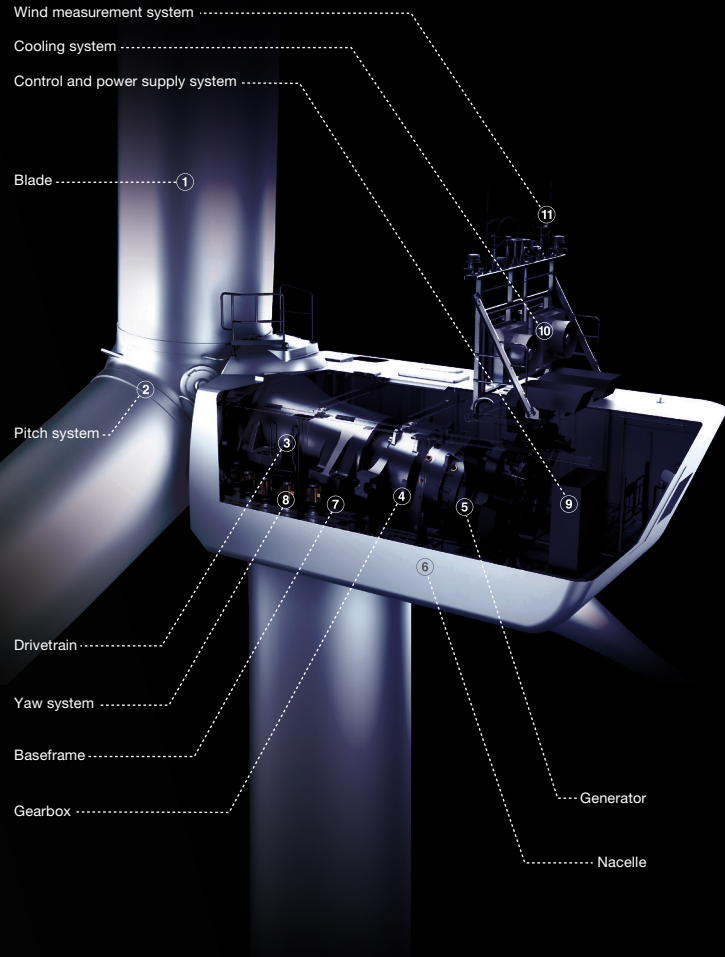
Equipped with an advanced environment reconstruction algorithm and LiDAR technology, our wind turbine platform enables real-time monitoring of severe wind conditions such as gusts, turbulence, and wind shears. This cutting-edge perception system, combined with an advanced unit control algorithm, reduces operational risks while simultaneously enhancing power generation efficiency.

#### Smart Diagnosis

Our platform incorporates a comprehensive wind turbine health diagnosis and evaluation system, providing continuous online monitoring of key components. Underperforming components are identified and warned up to two months in advance, reducing the overall fault rate by 20% and ensuring optimal performance and longevity.

#### Smart Coordination

Leveraging an intelligent wind farm control system, the platform facilitates advanced cooperative control solutions such as flow field cooperative control and full life cycle control. These intelligent coordination strategies enhance the overall performance of wind farms, delivering a 5%-10% improvement in maximum output.



## A New Generation of Onshore MSPM Series

### Specification

### GWH182-5.3MW

	Parameter	Unit	
<b>Operating parameter</b>	Rated power	kW	5300
	Wind class	IEC	S
	Cut-in wind speed	m/s	2.5
	Rated wind speed	m/s	10.2
	Cut-out wind speed	m/s	24
	Designed service life	year	20
	Operating temperature	°C	-30°C~+45°C
	Survival temperature	°C	-40°C~+50°C
<b>Rotor system</b>	Rotor diameter	m	182
	Swept area	m <sup>2</sup>	26016
<b>Gearbox</b>	Type	\	Three-stage gearbox
<b>Generator</b>	Type	\	Permanent magnet synchronous generator
	Rated voltage	V	1380
<b>Converter</b>	Type	\	Full power converter
	Power factor regulation range	\	Capacitive 0.9 ~ inductive 0.9 ( Optional ) ; Capacitive 0.95 ~ inductive 0.95 ( Default )
	Rated output frequency	Hz	50 / 60
	Rated output voltage	V	1140
<b>Brake system</b>	Aerodynamic brake system	\	Aerodynamic braking by feathering of three blades
	Mechanical brake system	\	Generator brake ( for maintenance )
<b>Yaw system</b>	Type/design	\	Motor-driven / planetary gear
	Yaw bearing	\	Sliding bearing
<b>Control system and lightning protection</b>	Type	\	PLC control system
	Lightning protection design standard	\	IEC61400 / 24 and IEC62305
	Lightning protection strategy	\	Integrated lightning protection system for the turbine
<b>Tower</b>	Type	\	Tubular steel tower
	Hub height	m	130 and site-specific