

Gamesa G128-4.5 MW



Gamesa



Advantages

A 4.5 MW rated power wind turbine with lower Cost of Energy which is as easy to transport and install as a 2.0 MW model

- » Class IIA/WZII.
- » Individual pitch and multivariable control minimize weight, loads and noise.
- » Sectional blade for easy transport and installation.
- » Permanent magnet synchronous generator and full converter technology to meet the most demanding grid code requirements.
- » Light weight, high performance modular drive train.
- » Gamesa WindNet[®] advanced technology for wind farm control and monitoring.

G128-4.5 MW



State of the art technology in wind

Rotor

Diameter	128 m
Swept area	12,868 m ²
Rotational speed (stationary)	12 rpm
Rotational direction	Clockwise (front view)

Blades

Number	3
Total length	62.50 m
Length of inboard section	30.50 m
Length of outboard section	32.00 m
Material	Organic matrix composite reinforced with fiber glass / carbon fiber

Tower

Type	Trunk conical tubular
Material	Post-tensioned prefabricated concrete / Structural carbon steel
Hub height	120 m

Gearbox

Type	2 planetary stages
Ratio	1: 37.88

Generator

Type	Permanent magnet synchronous generator with parallel independent modules
Rated power	4,500 kW
Voltage	660 V ac
Frequency	89.6 Hz
Rotational speed	448 rpm

Converter

Type	Full converter with independent modules
Rated power	4,500 kW
Voltage	690 V ac
Frequency	50 Hz / 60 Hz
Power factor	0.9 CAP – 0.9 IND for the entire power range (*)

* Measured at generator output terminals, on the low voltage side before the transformer, at rated grid voltage.

Transport and Assembly

Flexifit® and the modular design of its components allow the Gamesa G128-4.5 MW wind turbine to be transported and assembled using similar resources as are required for a 2.0 MW model.

FlexiFit®

The FlexiFit® crane, coupled to the nacelle, is used as an assembly and service tool to hoist and lower main nacelle modules such as the drive train, generator and hub. Using this device makes it possible to assemble and service wind turbines without large cranes, providing a manageable and cost effective alternative to traditional hoisting methods.



GridMate®

The Gamesa G128-4.5 MW wind turbine electrical system uses a permanent magnet synchronous generator and a full converter. The system comprises parallel modules which continue to function in the event of individual failure. GridMate® complies with the most demanding grid connection requirements.

turbine design and development

Reliable technology

The advanced technology used in the Gamesa G128-4.5 MW wind turbine makes for a more reliable system. Technological developments applied to improve reliability include load-reducing multivariable control, drive train with no high-speed rotating components and modular electric power system which allows partial operation of the unit and also isolates the mechanical train from loads caused by voltage drops.

InnoBlade®

Gamesa's new aerodynamic profiles reduce noise and maximize production. The InnoBlade® is manufactured using a combination of materials in a pioneering structure that reduces weight. Current tooling and equipment used to transport 2.0 MW models to the site are also suitable for this innovative sectioned-blade.

CompacTrain®

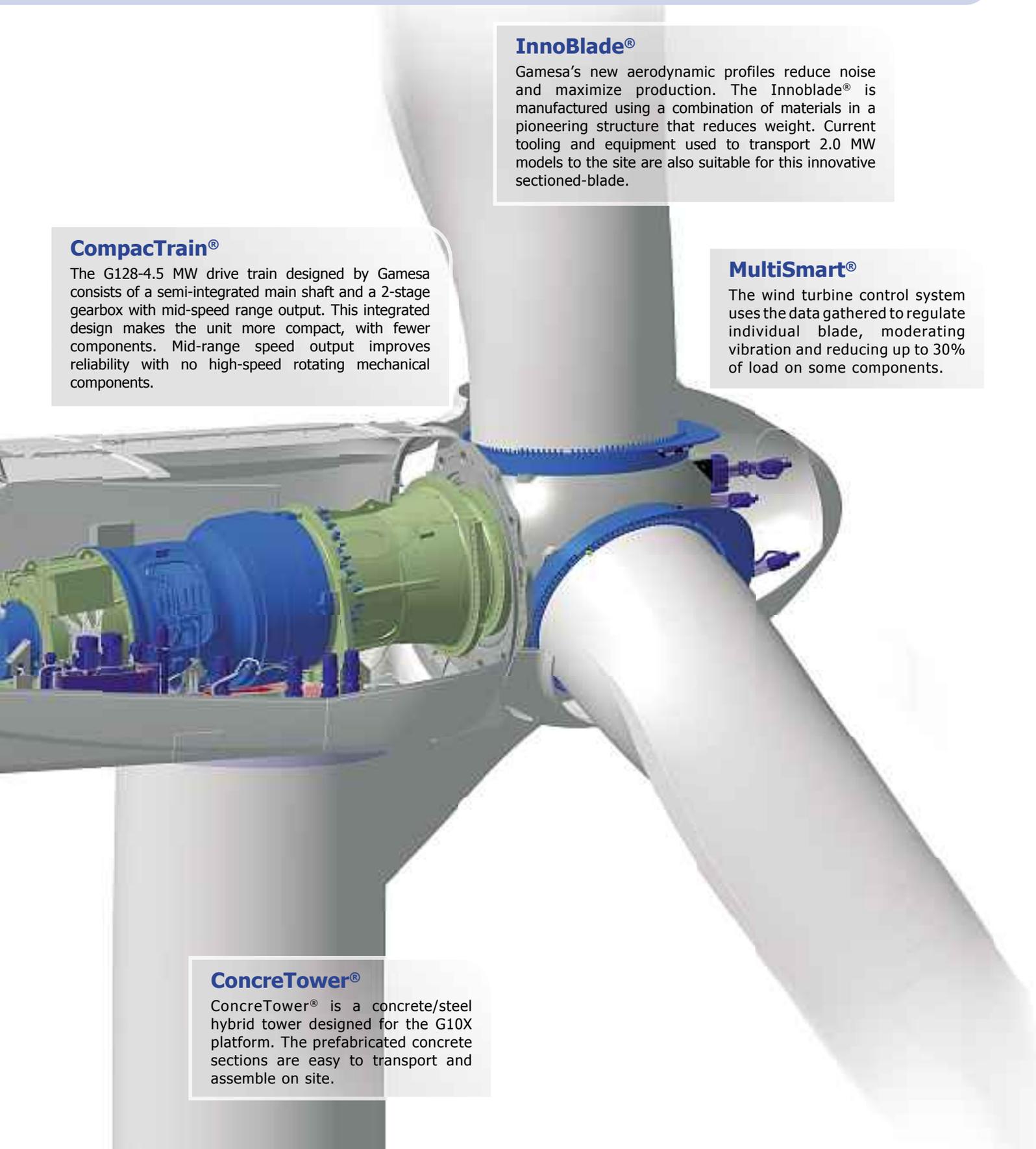
The G128-4.5 MW drive train designed by Gamesa consists of a semi-integrated main shaft and a 2-stage gearbox with mid-speed range output. This integrated design makes the unit more compact, with fewer components. Mid-range speed output improves reliability with no high-speed rotating mechanical components.

MultiSmart®

The wind turbine control system uses the data gathered to regulate individual blade, moderating vibration and reducing up to 30% of load on some components.

ConcreTower®

ConcreTower® is a concrete/steel hybrid tower designed for the G10X platform. The prefabricated concrete sections are easy to transport and assemble on site.





C/ Ciudad de la Innovación, 9-11
31621 Sarriguren (España)
Tel: +34 948 771000
Fax: +34 948 165039
info@gamesacorp.com
www.gamesacorp.com

CHINA

Room 605,
CBD International Building
N.º 16, Yong An Dong Li,
Chaoyang District
Beijing 100022
Tel: +86 10 6567 9888
Fax: +86 10 6566 9666

DENMARK

Vejlsøvej 51
8600 Silkeborg
Tel: +45 87 229205 / 9204
Fax: +45 87 229201

EGYPT

12 Dar el Shefa Street 3th. Floor,
Garden City- Cairo
Tel: +20 166642424
Fax: +20 227951866

FRANCE

118-122 Avenue de France
75013 Paris
Tfn: +33 1 46461423

GERMANY

Wailandtstrasse 7
63741 Aschaffenburg
Tel: +49 (0) 6021 15 09 0
Fax: +49 (0) 6021 15 09 199
germany.wind@gamesacorp.com

INDIA

N.º 489, GNT Road, Thandal Kazhani Village
Vadagarai Post, Redhills, Chennai – 600 052
Tel: + 91 44 3098 9898
sales.india@gamesacorp.com

ITALY

Via Mentore Maggini 48/50
00143 Roma
Tel: +39 0645543650
Fax: +39 0645553974

JAPAN

Daiwa Jisho Building 4F – 411
74-1 Naka-ku
Yamashita-cho
Yokohama-city 231-0023
Kanagawa
Tel: +81 45 680 50 80
Fax: +81 45 680 50 81

MOROCCO

345, Lot Gzennaya A B.P 397
Tanger (Boukhalef)
Tel: +212 539 39 33 08 / 09
Fax: +212 539 39 33 12

POLAND

Gdansk
Tel: +48 602 692 792

UNITED STATES

2050 Cabot Boulevard West
Langhorne, PA 19047
Tel: +1 215 710 3100
Fax: +1 215 741 4048

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