

Technical specifications for BONUS 150 kW Mk III wind turbine

Rotor

Type	Three-bladed, horizontal axis
Position	Upwind
Diameter.....	23.8 m
Swept area.....	445 m ²
Synchronous rotor speed.....	40.4 rpm
Power regulation.....	Stall regulation

Blade

Type.....	Self supporting
Blade length.....	11.2 m
Tip chord.....	0.50 m
Root chord.....	1.45 m
Material.....	Fibreglass reinforced polyester
Blade manufacturer.....	LM Glasfiber A/S

Aerodynamic brake

Type.....	Pivotable blade tip
Activation.....	Hydraulic. Passive activation by centrifugal force in over-speed

Load supporting parts of nacelle

Hub.....	Cast, nodular cast iron, oblong holes for pitch adjustment
Main bearings.....	Spherical roller bearings
Main shaft	Forged, alloy steel

Transmission system

Coupling shaft-gearbox.....	Shrink disc
Gearbox type.....	Two stage helical, cast gearbox housing, splash lubrication, labyrinth seals
Gearbox ratio.....	1 : 24.8
Gearbox manufacture	Flender
Coupling gear-generator.....	Flexible rubber coupling

 Generator

Type	.....	Pole-change asynchronous
Nominal power	.....	150/30 kW
Synchronous speed	.....	1000 / 750 rpm
Voltage and frequency	.....	400 V, 50 Hz
Generator manufacture	.....	ABB

Brake

Type	.....	Hydraulic disc brake
Position	.....	Brake disc at rotor hub

Nacelle bedplate

Type	.....	Fabricated steel construction
Corrosion protection	.....	Hot-dip galvanized

Yaw system

Type	.....	Active
Yaw bearing	.....	Externally geared, dust shielded
Yaw drive	.....	Electric motor with combined helical and planetary gearbox, controlled by windvane
Yaw brake	.....	Passive, with sliding shoes

Controller

Type	.....	Microprocessor based
Remote monitoring	.....	Prepared, typically via telecommunications network
Controller manufacture	.....	KK Electronic A/S

Tower

Type	.....	Tapered tubular tower
Hub height	.....	25m or 30m
Corrosion protection	.....	Hot-dip galvanized, optionally painted.

Operational data

Cut-in wind speed	.....	4 m/s
Nominal power at approx.	.....	14 m/s
Cut-out wind speed	.....	25 m/s

Masses (approximate)

Rotor	.....	2,500 kg
Nacelle excl. rotor	.....	6,000 kg
Tubular tower	.....	15,000 kg

BONUS Energy reserves the right to change the above specifications without previous notice