



# **CF60 – 60kW**

## CF60 General Data

Supplier/ Manufacturer	C&F Green Energy
Configuration	Horizontal Axis
Life Expectancy	20 Years
Drive Train	Direct Train
Service Maintenance	Annually
Rated Power	59.9kW @ 9.0m/s
Cut In Wind Speed	3.0m/sec.
Cut Out Wind Speed	25 m/sec.
Rated Wind Speed	9.5 m/sec.
Survival Wind Speed	60 m/sec.
Passive Power Regulation	Active pitching (blade-angle adjustment)
Active Power Regulation	Fully variable back-to-back IGBT system
Noise Emissions	35dB(a)
Ambient Temperatures	From -10°C UP TO 40°C
Electrical Configuration	Inverter Connected
CE Compliant	Yes

## Applied Standards

Degree of Protection	IP55
Standards	IEC 61400-1

## Rotor

Rotor Diameter	25.4m
Rotor Speed	38rpm
Rotor Weight	2 Tonnes
Power Regulation	Active Blade Pitch

## Blades

Number of Blades	3
Length	12m
Swept Area	491m <sup>2</sup>
Position	Upwind
Direction	Clockwise
Material	Fiberglass/ Vinyl-ester
Colour	Matt White. Ral 9018

Weight 1500kg per set of 3

### Shaft Assembly

Shaft Material	EN24T
Bearing Housing Type	Ductile Cast Iron
Bearing Type	Dual Spherical Roller
Bearing Lubrication	Grease

### Fairing

Nacelle	2 Part - Fiberglass
Spinner	4 Part - Fiberglass

### Electrical Output

Rated Turbine Output	100kW, 106 kVA in 9.5 m/s wind
Maximum Continuous Turbine Output	100kW, 106 kVA
Maximum 1 Minute Turbine Output	100kW, 106 kVA
Maximum 1 Minute Reactive Requirement	1 kVARS
Maximum Feeder Current	150A
Design Power Factor	0.96

### Brake System

Primary Brake System	Full Blade Pitching
Back Up Brake System	1 Passive Spring Applied, Hydraulically Released + 1 Hydraulic Active
Primary Brake Compressor	Piston Type – AC Motor
Primary Brake Working Pressure	95 Bar

### Yaw System

Type	Active Yaw
Signal From	Anemometer
Yaw Slew Ring	4 Point Ball Bearing
Yaw Drive Type	Double AC Motor with Planetary Gearbox
Damping Device Resisters	Active & Passive Yaw Brake
Electrical Connection	Twist Cable
Yaw Locking Device	Hydraulic Brake & Electric Brake on Motor

### Generator

Manufacturer	C&F Green Energy
Type	Permanent Magnet (Radial)
Voltage	400V

Frequency	50Hz
Winding	Star
Rated Power	100kW
Rated Current	145A
Number of Poles	48
Rated Rotation Speed	45

## Nacelle

Nacelle Frame	Welded Structure
Nacelle Frame Finish	Primer & Paint
Nacelle Cover	2 Parts Fiberglass
Dimensions	5.9m x 2.25m x 2.6m
Weight	10 Tonne Approx.
Colour	RAL 9018

## Tower

Type	Monopole Steel with access door
Sections	3 Sections bolted on site
Weight	16 Tonne
Hub Height	30m/35m
Blade Tip Heights	41.9m/47.1m
Location Ladder	Internal with fall arrest system and work platform
Turbine Access	Internal with fall arrest system and work platform
Colour	Matt White Ral.9018

## Controller

Manufacturer	Phoenix Contact
Model	PLC-ILC-150-GSM
Remote Monitoring	Bespoke SCADA
Data Logging	Yes