



PS-1800 kW

creating a new paradigm in
Wind Energy

RRB ENERGY LIMITED
(Pioneers in Wind Power Since 1987)





PS-1800 kW

RRB Energy Limited, incorporated in the year 1987, has always aimed at producing World Class Wind Electric Generators (WEGs) in India that would help economically harnessing wind power. And now, with more than two decades of experience in the Wind Energy Sector, the Company brings another World Class highly efficient, better power quality Wind Electric Generator **PS-1800 kW**. A unique combination of a Tubular Tower, hydraulic pitching mechanism and light and robust blades ensures life time returns on investment and absolute satisfaction for our valuable customers.

ICON IN THE WIND ENERGY SECTOR

Higher efficiency

Reduced stress and load

Better power quality

Increased safety

Increased reliability

Low operating cost

VITAL COMPONENTS

Rotor Blades

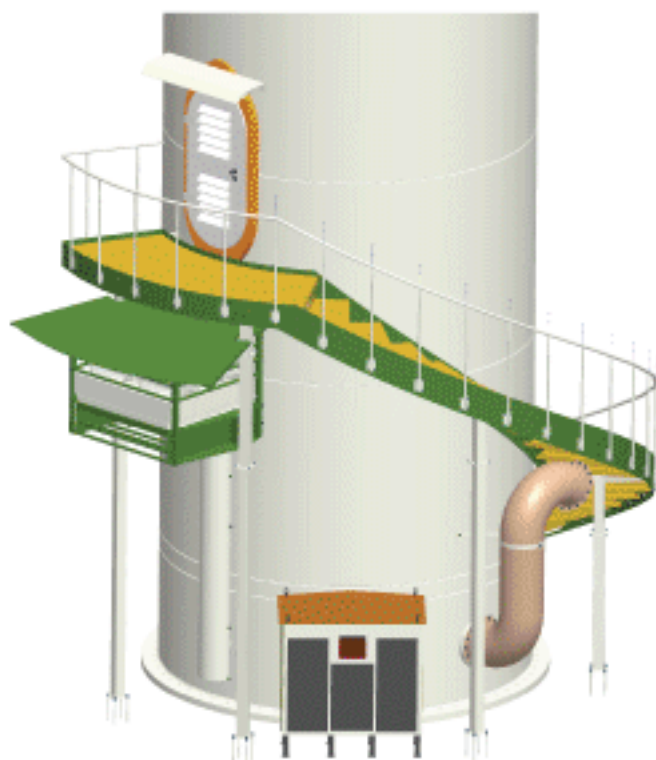
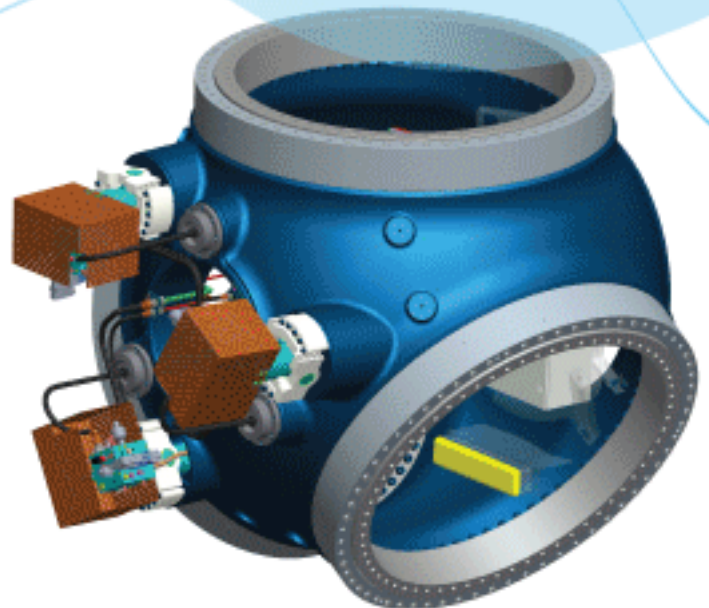
The rotor blades are aerodynamically designed to harness maximum power from wind and are based on European standards. Length of the blade is 40m and the same is being manufactured in-house.

The low weight-to-diameter ratio results in less stress, enhancing the life and efficiency of the rotor blade.



Hydraulic Pitch System

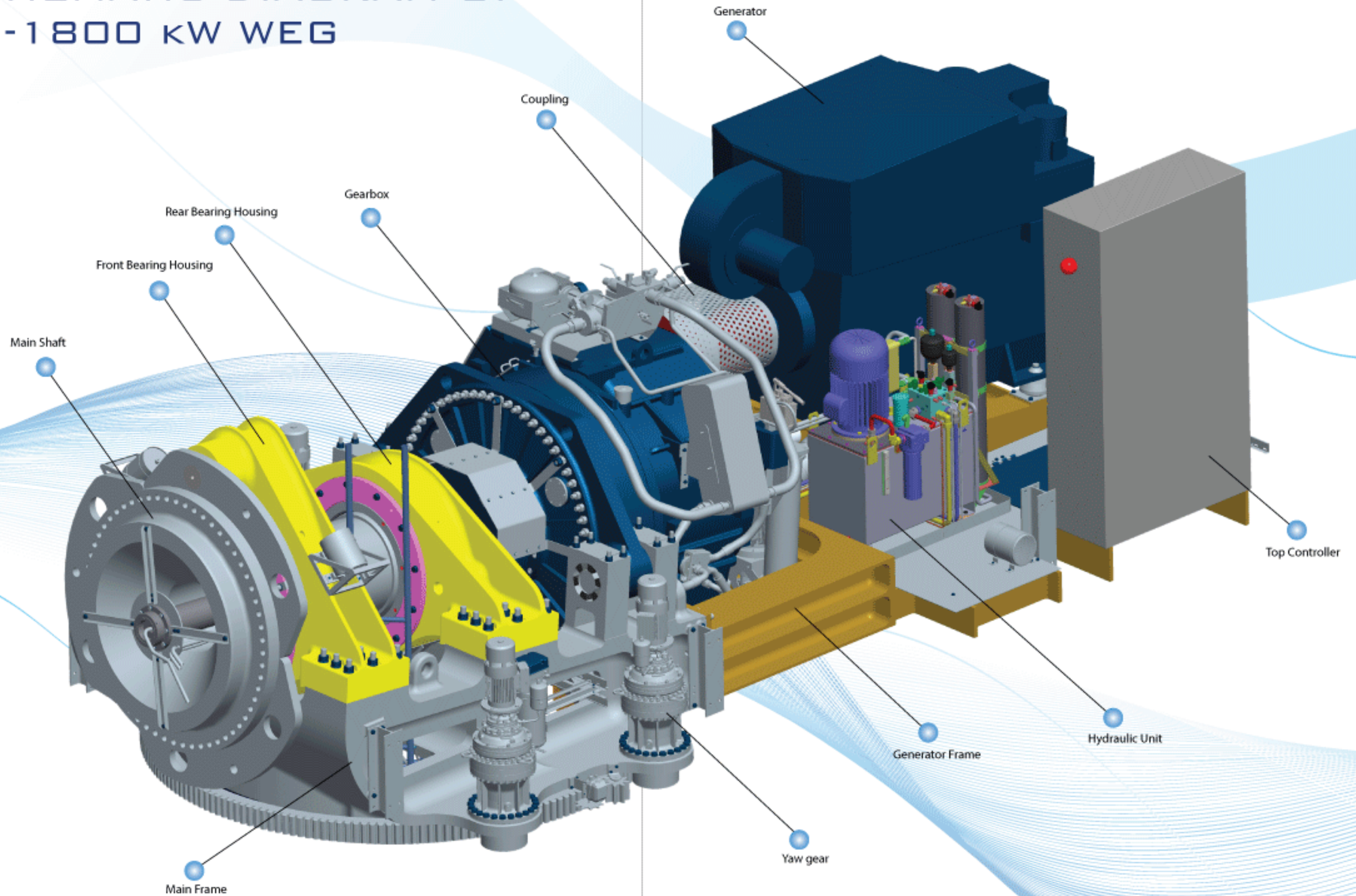
Sophisticated, accurate Hydraulic pitch system ideally suitable for any kind of wind conditions. Three independent pitch cylinders enable more accurate pitching. Safety is ensured by means of accumulators.



Specially Designed Tubular Tower

The tubular tower is specially designed with rest rings and lighting facility. Platforms are provided inside the tubular tower to ensure that the components are placed in a manner that allows easy accessibility and effective cable routing. Elevator provision is available in the tubular tower, on an optional basis, in order to provide comfort to customers.

SCHEMATIC DIAGRAM OF PS-1800 KW WEG



GENERATOR & CONTROLLER

Generator

A highly efficient generator suitable for power converter operation also ensures that a wide range of speed variation is possible.

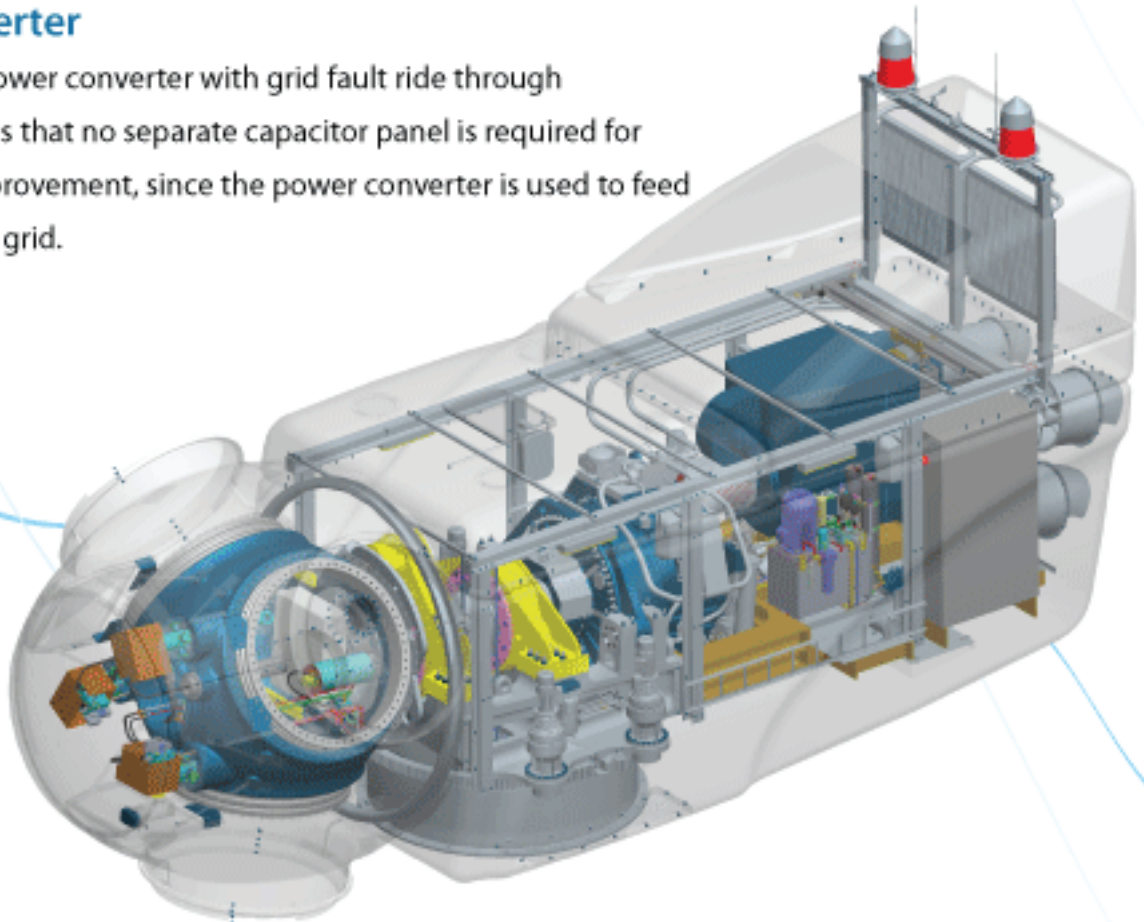
Controller and Panels

The microprocessor based controller has a touch screen facility on the operator panel. Hub, Top and bottom control panels have also been incorporated.

Monitoring of the performance of the WEG is done through an in-built SCADA system.

Power Converter

An IGBT based power converter with grid fault ride through capability ensures that no separate capacitor panel is required for power factor improvement, since the power converter is used to feed the power to the grid.



SALIENT DESIGN FEATURES OF THE WEG

PS-1800 kW WEGs are designed to endure extreme environmental conditions. The dynamic design of the WEG will give a higher level of safety, quality and efficiency. The WEG is suitable for 50 Hz and 60 Hz grid.

The WEG is designed for Wind Class II and III sites.

TECHNICAL SPECIFICATIONS PS-1800 kW*

Overall Data

Rated Power	1800 kW
Cut in wind speed	3.5 m/s
Cut out wind speed	25 m/s
Rated wind speed	11.8 m/s
Tip speed	73 m/s
Rotor speed	17 rpm
Hub height	80 m and 100 m
Nacelle tilt angle	5°
Regulation	Pitch and Power Converter

Gear Box

Type	Planetary / Parallel
Gear Ratio	1: 60.95
No. of Steps	2

Generator

Type	Asynchronous cage induction
Voltage	690 V
Rated Speed	1008 rpm
Frequency	50 Hz / 60 Hz

Tower

Type	Tubular
Height	78 m and 98 m
Material	Steel
Sections	4/6

Rotor

No. of blades	3
Diameter	82 m
Swept area	5283 m ²
Power Regulation	Pitch and Power converter

Brake System

Aerodynamics	Full feathering of blade
Mechanical (Parking)	Disc Brake
Yaw System	Frictional Pads with gear motors for yawing

Controls	Microprocessor based
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Converter	Four quadrant IGBT based fully fed converter
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BUILT-IN SAFETY FEATURES

- ▶ Emergency push buttons in :
 - ▶ Hub, Top and Bottom Control Panels,
 - ▶ Yaw top and Bearing housing
- ▶ Yaw Brake system
- ▶ Disc Brake Caliper
- ▶ Earthing System
- ▶ Lightning Protection
- ▶ Smoke Detection
- ▶ Fire Detection
- ▶ Over speed guard

* Subject to change

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