

Free Breeze Energy Systems Ltd.

Incorporated in 2004, Freebreeze Energy Systems Ltd. has positioned itself to be a leader in sales of Wind Turbines for Net-metering, Standard Offer Contract, and Power Purchase Agreement markets. Free Breeze has enjoyed unprecedented growth in sourcing and selling Wind Turbines for many diverse International Clients and is proud to have provided the PS-600 for the first North American installation in Worcester, MA.

Free Breeze is a Licenced Electrical Contractor and through experience and knowledge has an established reputation for integrity and professional competence. They strive for and exceed client expectations while working diligently and professionally to ensure the client has all the information, documentation and recommendations needed to meet their Installation, Erection and Commissioning Milestones.

Free Breeze can provide a Turn Key response to your project needs and has one of the quickest delivery times in the industry. They have all the resources to economically, efficiently and safely provide all logistics needed to deliver the Turbine to your site.

www.freebreeze.com



free breeze
energy systems ltd.

North American Distributor for



1A-745 Bridge St. W
Waterloo, Ontario, Canada
N2V 2G6

519-885-4311
www.freebreeze.com

Setting the Standard for Today's Wind Technology

free breeze
energy systems ltd. | www.freebreeze.com



Welcome to RRB Energy Ltd.

RRB Energy Ltd., formerly known as Vestas RRB India Ltd. was created in 1987 as a joint venture between RRB Consultants and Engineers Private Ltd. of India and Vestas Wind Systems A/S of Denmark. The two founding partners combined their talents and resources to develop Turbines for the Indian market. The PS-600 Wind Turbine Generator with a 47m rotor diameter was modeled after one of the most successful Turbine designs. This resulted in the development and production of this world class wind turbine.

Since 2005 over 640 PS-600's have been manufactured and until recently this tried and true Turbine has been reserved for the Domestic Indian market. In response to high international demand, RRB Energy has made this exceptional Turbine available world wide in a partnership with Free Breeze Energy Systems Ltd.

The Legacy

Since the PS-600 was modeled after a legendary Wind Turbine it should come as no surprise that with such an acclaimed pedigree the PS-600 has demonstrated consistent high performance ratings and low operating costs. Its similarities with other Turbines allows for a ready and future supply of local parts, in addition to a pool of well trained Technicians. This advantage allows for the PS-600 to be the obvious choice for community projects and provide clients a seamless transition when replacing older units or adding to their existing Wind Farm.

RRB Energy Ltd. is committed to ensuring the PS-600 will remain at the forefront of technical advancements in Wind Turbine design. Although the PS-600 owes much to its legacy it is also recognized in its own right as one of the great mid-sized turbines in the market today and for years to come.

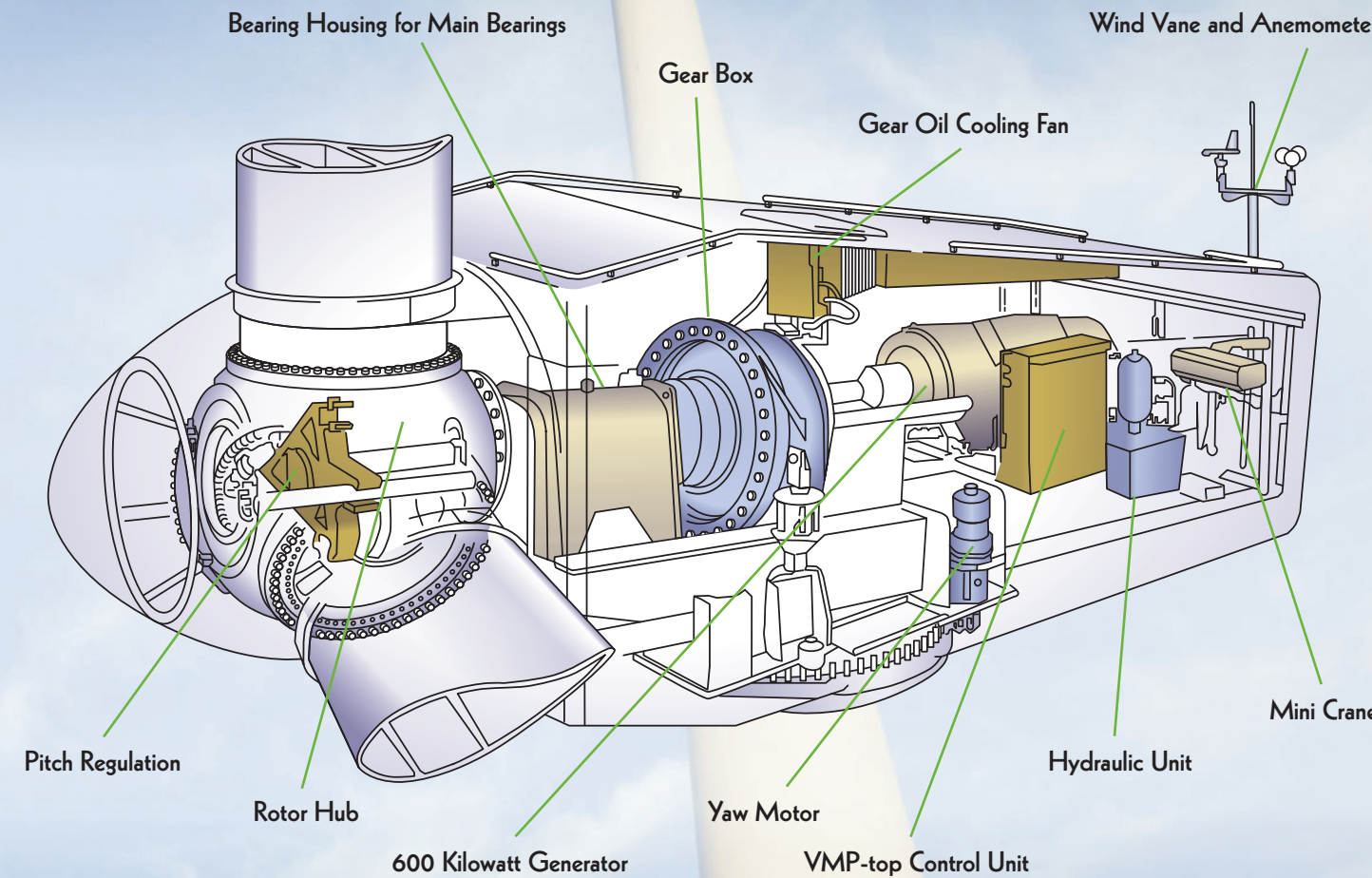
RRB Energy Ltd. is committed to the highest levels of Quality Control and has earned Certificates from respected organizations as Germanischer Lloyd Industrial Services GmbH, Det Norske Veritas and the Centre for Wind Energy Technology. All manufacturing and testing is performed under aggressive levels of Quality Control and procedures. ISO achievements include 9001:2000 and 14001:2004.

The Turbine

The PS-600 is a 600 kilowatt Wind Turbine Generator equipped with components from reputable firms such as Siemens Ltd. and Moventas who supply the Generator and Gear Box respectively. The 23 meter Blades are manufactured in a state of the art climate controlled facility that was built in 2006. The PS-600 is also equipped with pitch regulation controlled by a microprocessor (VMP) and is available for both 50 and 60 hertz markets.

Since its conception and installation on wind farms and community power projects; the PS-600 has continually demonstrated that it is a solid and dependable performer. This Turbine was designed to function exceptionally well in a variety of climates, locations and wind regimes. This Turbine is designed for ambient temperatures ranging from +50°C to -20°C and colder with the optional winter package installed.

The PS-600 Wind Turbine Generator is premier in its class with a track record of proven reliability and performance in addition to low operating costs. This versatile Turbine excels in many applications from community power projects to Wind Farms.



Highlights

- Over 640 installations since 2005
- Reliable performance, low operating costs
- Available for 50 Hz and 60 Hz markets
- Wind Turbine classes 1-4
- Adaptable to many climates
- World class manufacturing facilities
- Free Breeze offers expedited delivery times
- Free Breeze provided PS-600 for first N.A. installation

Technical Specifications

	60 Hz	50Hz
Overall Data		
Cut in wind speed	4 m/s	4 m/s
Cut out wind speed	25 m/s	25 m/s
Survival wind speed	70 m/s	70 m/s
Rotor speed	28.9 rpm	26.2 rpm
Hub Height	50 m / 65 m	50 m / 65 m
Nacelle tilt angle	5°	5°
Gearbox		
Type	Planetary / Helical	Planetary / Helical
Gear Ratio (approx)	1:63.4	1:58.2
No. of Steps	3	3
Generator		
Rated power output	600 kW	600 kW
Type	Single Wound Asynchronous	Single Wound Asynchronous
Voltage	690v 3 phase	690v 3 phase
Revolutions	1830 rpm	1527 rpm
Frequency	60 Hz	50 Hz
Tower		
Type	Conical	Conical
Height (optional)	48.1 m / 63.1 m	48.1 m / 63.1 m
Material	Steel	Steel
Nacelle Cover		
Type	Fiber glass / reinforced polyester	Fiber glass / reinforced polyester
Rotor		
No. of Blades	3	3
Diameter	47 m	47 m
Swept Area	1735 m ²	1735 m ²
Power Regulation		
Type	Pitch Regulated	Pitch Regulated
Brake System		
Aerodynamics	Full feathering of blade	Full feathering of blade
Mechanical	Disc Brake	Disc Brake
Yaw System	Slewing system with gear motors yawing	Slewing system with gear motors yawing
Controls		
Type	Microprocessor based (vmp)	Microprocessor based (vmp)

