

## wind turbines for remote areas



10kW turbine at Wilsons Promontory  
south-east Australia

### features

- *super rugged construction*
- *fully enclosed brushless generator*
- *designed for minimal maintenance*
- *fully galvanised steel construction*
- *direct drive generator*
- *PWM shunt charge controller*
- *tilt towers for remote installation*

Westwind have been designing and manufacturing wind turbines since 1983 that have been proven in hundreds of power systems worldwide. Westwind turbines are designed for utmost reliability and performance even in severe weather and climatic conditions.

Power production is maximised by the newly developed generator design employing rare-earth 'super' magnets. The new generator design blends the virtues of Westwind's exceptionally simple, low-maintenance design with even greater performance.



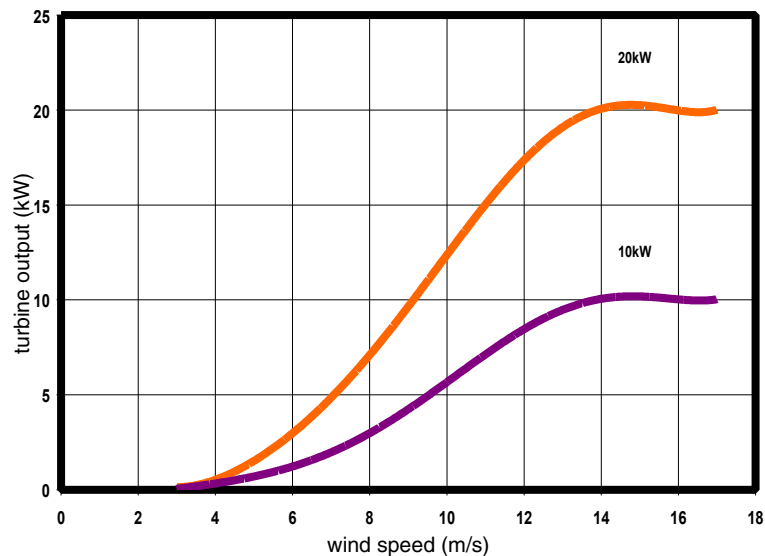
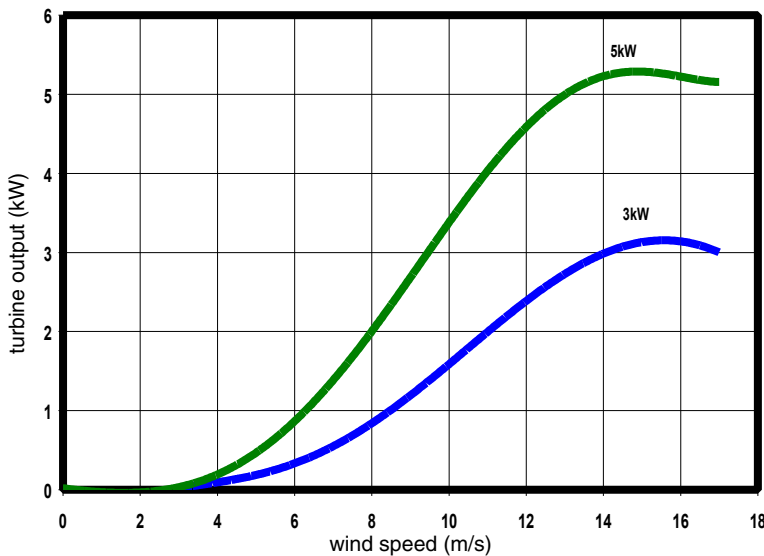
2.5kW turbine powering an optical  
fibre booster station in northern China

capacities:  
**3kW • 5kW • 10kW • 20kW**

## SPECIFICATIONS

Model	3kW	5kW	10kW	20kW
<b>Performance</b>				
Start-up wind speed	2.5m/s	2m/s	2m/s	2m/s
Cut-in wind speed	3.5m/s	3m/s	3m/s	3m/s
Rated wind speed	14m/s	14m/s	14m/s	14m/s
Cut-out wind speed	N/A	N/A	N/A	N/A
Furling wind speed	17m/s	16m/s	16m/s	16m/s
Rated power	3kW	5kW	10kW	20kW
<b>General Specs.</b>				
Rotor diameter	3.7m	5.1m	6.2m	10.4m
Weight	190kg	200kg	380kg	750kg
Over speed protection	Auto tail furl	Auto tail furl	Auto tail furl	Rotor pitch, Auto tail furl
Generator (direct drive)	18 pole NeFeB	18 pole NeFeB	26 pole NeFeB	36 pole NeFeB
DC charge voltages	48, 96, 110, 120V	48, 96, 110, 120V	110, 120V	240V
DC charge controller	PWM shunt reg.	PWM shunt reg.	PWM shunt reg.	PWM shunt reg. Grid connect available

## Performance curves



### The Westwind charge controller

The Westwind battery charge controller converts the three phase AC output current from the wind turbine to DC. As the battery voltage reaches a preset level, the controller progressively diverts the required amount of current to a resistive element dump load to prevent overcharging of the battery. The current diversion is performed smoothly using high frequency, pulse width modulation (PWM) switching. The charging regime is battery temperature compensated and battery equalisation may be performed either manually or remotely.

The controller is housed within an IP54 rated steel enclosure and is designed for free-convection cooling for increased reliability even in hot and humid conditions. An analogue voltmeter and ammeter give precise indication of instantaneous performance. Comprehensive fault protection, including circuit breakers are standard equipment.

This 'shunt' style of regulation ensures the generator is constantly loaded therefore reducing rotor speed and consequently minimising wear and noise. This regulation/control technique is far superior over traditional 'series' regulation whereby the turbine is disconnected and allowed to 'run-free' when the battery is fully charged.

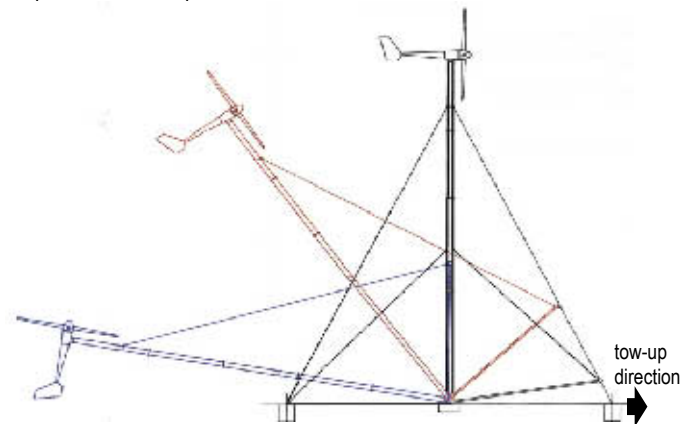
A batteryless, grid connect, inverter is available for the 20kW turbine.



Battery charge controller and dump load

### Westwind tower kits

Westwind manufacture a range of guyed, tilt-style towers available in heights from 18 - 36m. Tilt towers enable safe and easy installation/maintenance of the turbine at ground level, without the need for cranes. The Westwind tower kit comes complete with all rigging and foundation components, tow-up cable and sheave system - all that is required is concrete and reinforcement mesh. An isolating circuit breaker is supplied housed within an integrated steel enclosure at the base of the tower. A manual furling system is also integrated to permit shutdown prior to maintenance etc.



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