



vindtek20

British built turbine ideal for agriculture, business, schools, medical and industrial sites.

Features of the Vindtek 20:

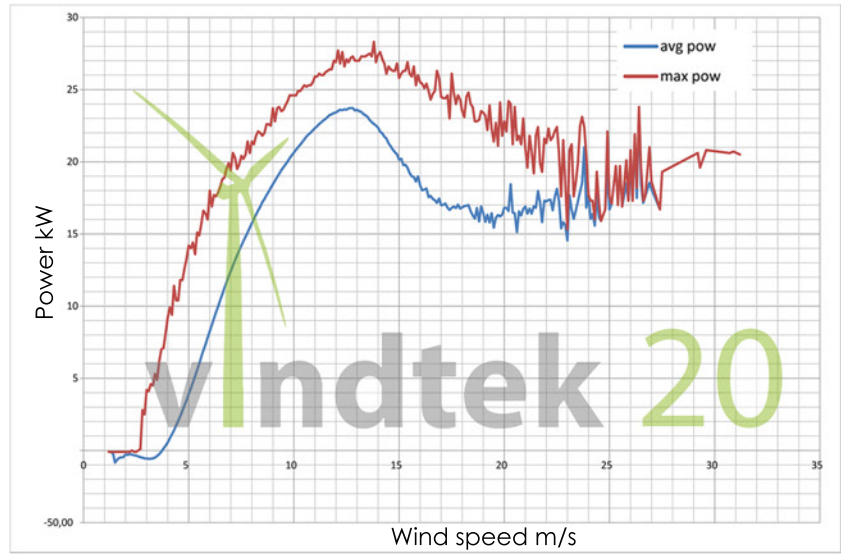
- 20 and 24m Hutchinson hydraulic towers
- No permanent roads required
- No crane required for installation
- Fully automatic stop-start technology
- Remote monitoring software
- Wireless GSM connectivity
- Triple fail safe brake system
- Class 2 Design
- World standard blade design with integrated tip brake
- Advanced yaw bearing
- High quality vented caliper brake
- Sensor control to all key components
- Intelligent control cabinet
- Nord gear box and motor
- Nord yaw motor
- Minimal running costs
- Five year warranty
- Insurance backed



Performance Data

Rotor Diameter 13 m
 Rotor Swept Area 132.73 m²
 SWT Data Source Sven

V_i m/s	$P_{Wind,i}$ W	P_i W	$C_{P,i}$
1	81	0	0.00
2	650	0	0.00
3	2 195	0	0.00
4	5 203	1 000	0.19
5	10 162	4 000	0.39
6	17 560	8 000	0.46
7	27 885	12 500	0.45
8	41 625	16 000	0.38
9	59 267	18 500	0.31
10	81 299	20 500	0.25
11	108 208	22 500	0.21
12	140 484	23 500	0.17
13	178 613	23 500	0.13
14	223 083	22 500	0.10
15	274 383	20 000	0.07



This is the early information derived from the prototype. This is actual data recorded by certified measuring equipment. The wind generator is being prepared for MCS testing by NAREC and will be available for UK installation in the near future. The power curve will be reissued at this time based on the results of the MCS test.

Tower	
20m	Hutchinson 3-piece Hydraulic Tower
24m	Hutchinson 3-piece Hydraulic Tower

20m tower	
Av. Windspeed (m/s)	Predicted yield with 5% loss (kwh)
5	46,065
5.5	56,396
6	66,110
6.5	74,835
7	82,315
7.5	88,417
8	93,118

24m tower	
Av. Windspeed (m/s)	Predicted yield with 5% loss (kwh)
5	51,120
5.5	61,676
6	71,322
6.5	79,703
7	86,608
7.5	91,971
8	95,838

Warranty	
5 years	Parts
2 years	Labour

Turbine	
Configuration	3 blades horizontal axis
Rotor Speed	62 rpm
Rotor Diameter	13m
Blade swept area	133m ²

Performance	
Rated avg. Power	20kW @ 9.5m/s winds
Rated Peak Power	24kW @ 9.5m/s winds
Max Power	25kW @ 14m/s
Cut in Speed	3.5m/s
Cut Out Speed	25m/s (10 sec avg.)
Survival speed	53m/s
Overall Weight	---

Generator	
Type	Asynchronous generator
Configuration	50/60Hz

Brake	
Main brake	AP Racing disk on low speed side
Secondary Brake	Integral high speed brake in generator
Third Brake	Air tip - activated on over speed (over 70rpm)

Brake Controls	
1	Sensor error message sent back to software
2	Anemometer recording 25m/s winds activates fail safe brake
3	Over speed tip brake due to loss of mains (grid fail)



Wind Instruments

Anemometer and Weather Vane are separate components on the Vindtek 20. The reason being that proven technology coming down from large scale wind turbines show this as best practice. Both components are high quality manufactured from brass and stainless steel. They communicate with the control cabinet and the data is available via the remote monitoring system for both manufacturer, installer and end user to see.




Ease of Access

The bottom section of the tower locked in the vertical position. The hydraulic rams are attached at service to bring the turbine down for fluid level checks and periodic inspection of the blades this process is of great benefit as it is much easier to work on the generator on the ground.

As can be seen at this location there is no requirement for permanent roads or crane pads. This helps keep install costs down and reduces the cost of ownership against maintenance in the coming years another benefit is the planning trade off that an installation with minimal disruption to its surrounds can bring.



The photograph shows the generator with the top cover removed exposing the gear box and motor. This image also emphasizes the ease in which the machine can be worked on on the ground.



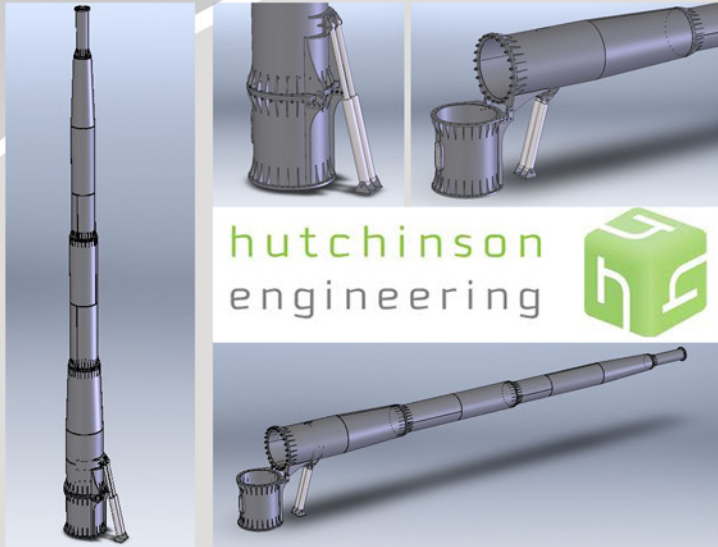

Controls

This is the control cabinet, which houses the brain of the turbine. Vindtek have designed a single plug and play data cable coming from all the sensor points within the nacelle and this removes the possibility of any human error on install and speeds up the installation time.



The exploded image, left, shows the information which is visible on the control cabinet door. Accessed through the scroll down menu, which instantly gives you: wind speed; instant production; rpm of the motor and the hub etc.

Hydraulic Rams



The use of hydraulic rams enables the Vindtek 20 to be installed in virtually any location.

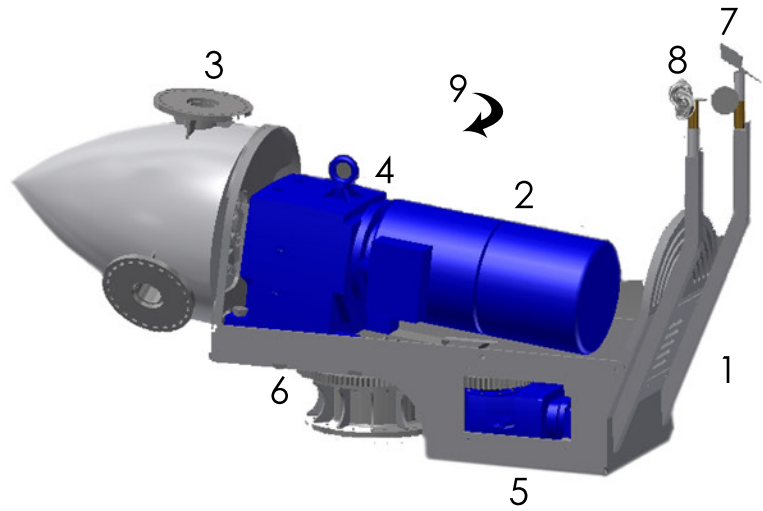
A set of hydraulic rams is retained by every installer who will bring them to site for the annual service or any required



Vindtek Ltd
Eco House
Kings Mount
Ramparts Business Park
Berwick-upon-Tweed
Northumberland
UK

www.vindtek.co.uk

T: +44 (0)1289 333110
F: +44 (0)1289 333119
E: info@vindtek.co.uk



- 1 Galvanised steel chassis
- 2 Nord generator
- 3 Blade assembly
- 4 Nord gear box
- 5 Nord yaw motor
- 6 Unique toothed yaw bearing
- 7 Weather vane
- 8 Anemometer
- 9 Linear brake

Triple Fail Safe Brake System

The Vindtek 20 uses three different brake systems for heightened security. The picture shows the tip brake.

