

QR6 Vertical Axis Wind Turbine

- Elegant aesthetically pleasing swept blade design
- Compact and easy to integrate
- Revolutionary blade tip designed to shed noise
- Unique aero-elastic blade design captures turbulent wind and absorbs vibration
- Power regulation
- In built safety mechanisms – auto emergency shutdown
- Operating wind speeds: start up 1.5 m/s – safety cutout > 20 m/s
- Design life 30 years +

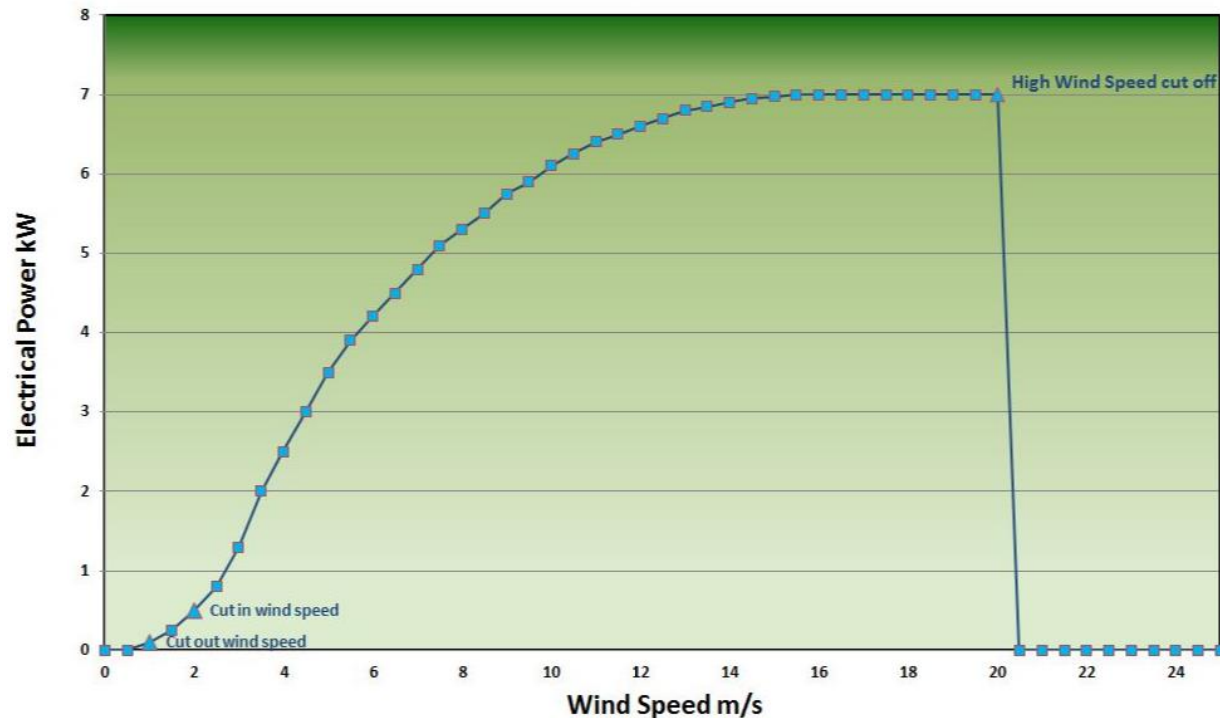


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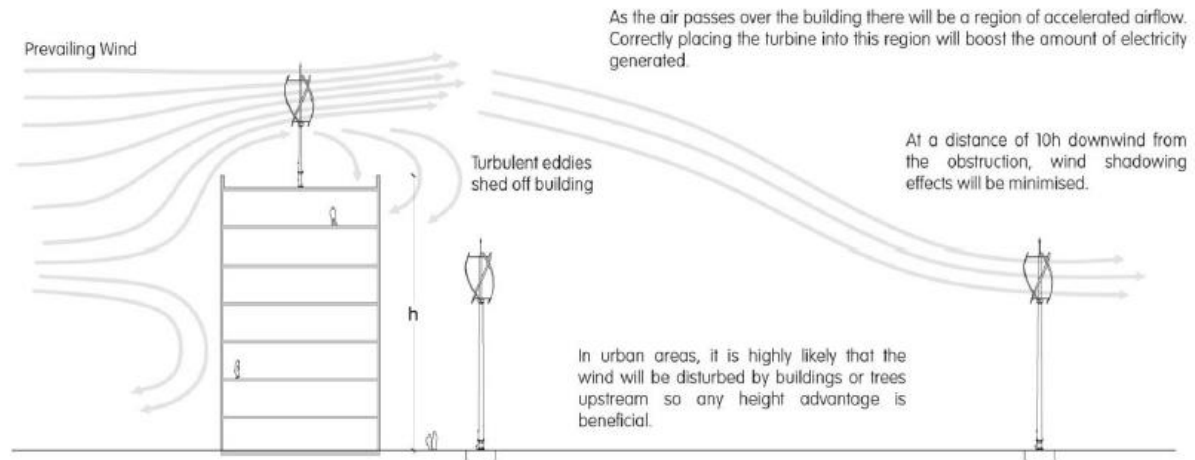
Wind conditions & site exposure

The Power Curve below is perhaps the easiest way to understand power production. It is important to note that the power curve is not linear and there are sharp gradients due to the Qr6 turbine being optimized to run in the 10m/s (22mph) to 16m/s (35mph) band, so a small increase in wind makes a significant difference to power production. The Qr6 Turbine has a cut in speed of 1.5 m/s (3.35 mph) and will function making a positive contribution down to 1.1 m/s (2.5 mph) and cuts out to protect itself at 20 m/s (45mph). Most calm days in the UK can be considered to still have 6mph to 10mph wind speeds on the ground which increases rapidly on a mast at 15m.

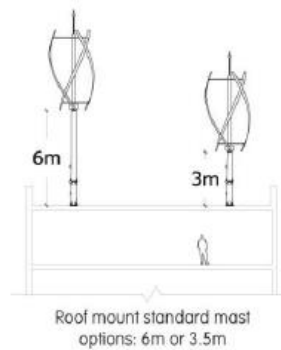
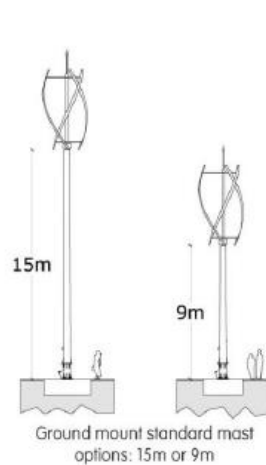
Quiet Revolution Qr6 Power Curve



Optimising Wind Energy in the Urban Environment

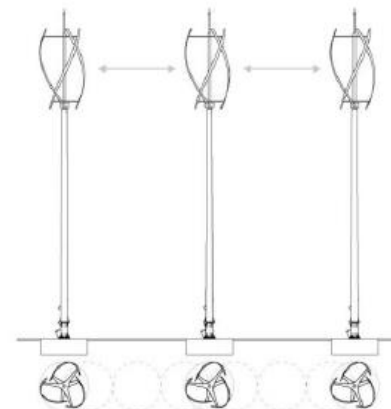


Installation Options



Note: masts come galvanised, other finishes are available on application.

Turbine Spacing



Multiple turbines should be placed at least 3 rotor diameters (9.3m) apart to minimise interference.



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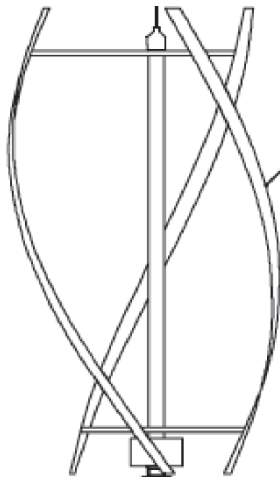


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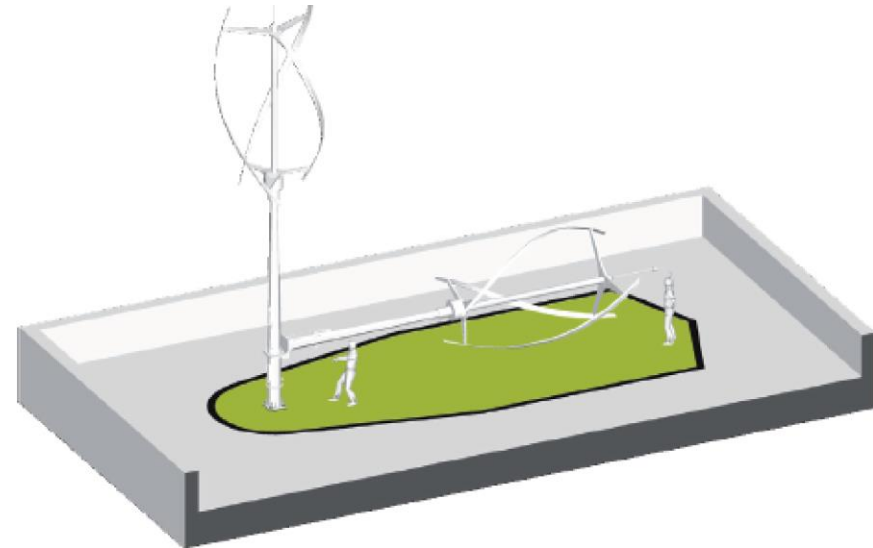
WORKING AREAS

1140mm

5100mm



Mast and turbine in operating position



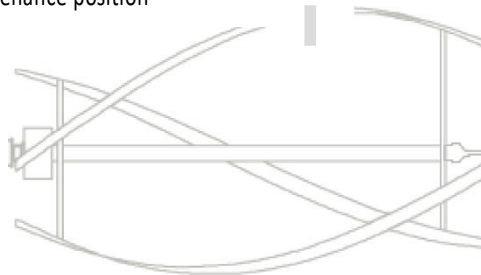
Highlighted area denotes working area for installation and maintenance – 6m mast however see table for required dimensions for other mast sizes

6000mm

Mast and Turbine in maintenance position



Hydraulic ram used for maintenance

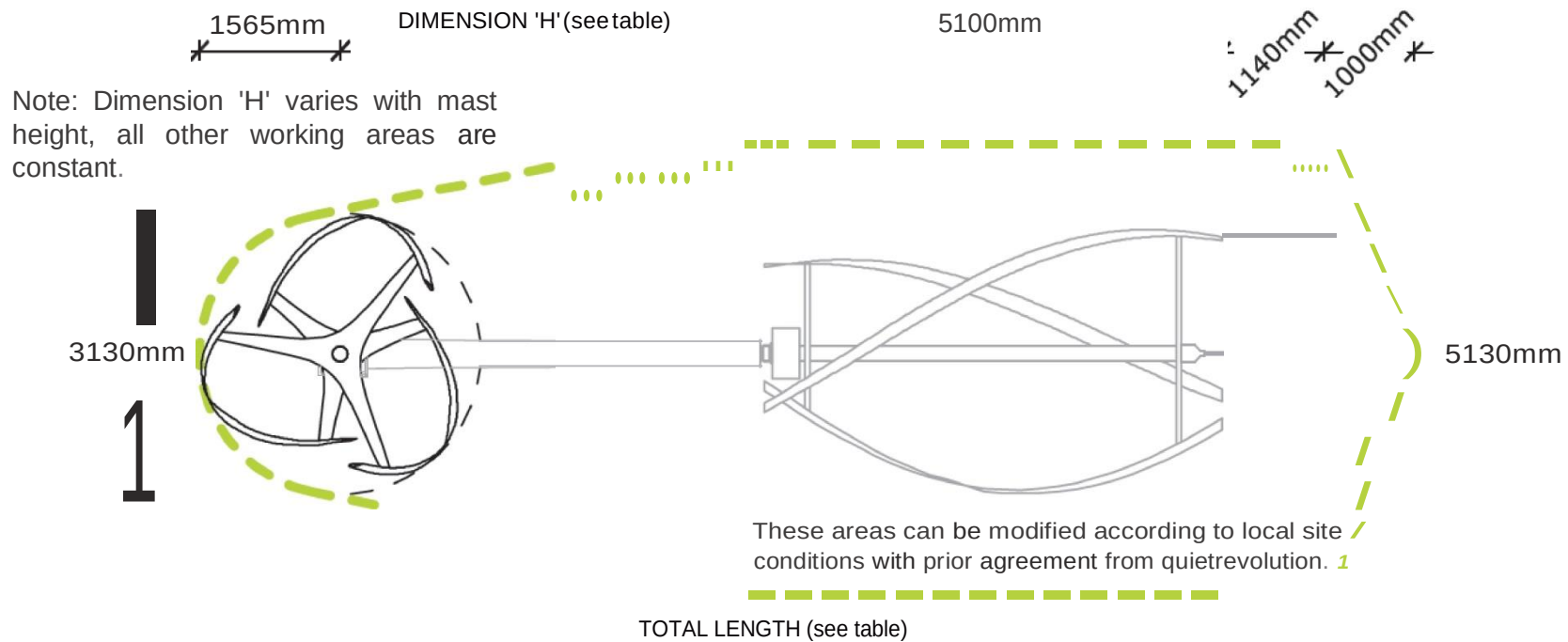


Mast Height	Dimension 'H'	Total Length
6m	5015mm	14185mm
15m	13885mm	23055mm
18m	16910mm	26080mm

ELEVATION @ 1:100 (A4)

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Maintenance Requirements



MAINTENANCE: It is essential that due consideration is given to maintenance access. In most instances a minimum request is stair access due to heavy trolley mounted equipment used during maintenance.

PLAN @ 1:100 (A4)

The qr6 Vertical Axis Wind Turbine was designed as the next generation of helical VAWT offering improved power generation, increased swept area whilst retaining the intrinsic beauty of the original design

The blades, spokes and torque tube are made of advanced composite materials including carbon fibre for weight, reduction, stiffness and longevity



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Test Site Data

Derived Noise Emission and Noise Immission for a wind speed of 8 m/s at rotor centre height

PARAMETER	SYMBOL	VALUE
Apparent Emission Sound Power Level (dB(A) re 10^{-12} W)	$L_{Wd,8m/s}$	86.5
Combined Uncertainty (68% confidence level) (dB)	σ	1.9
95% Confidence Limit (dB)	1.645σ	3.1
Noise Slope at 8 m/s (dB/m/s)	S_{dB}	2.38
Declared Apparent Emission Sound Power Level, (dB(A) re 10^{-12} W)	$L_{Wd,8m/s}$	90
Immission Sound Pressure Level at 60 m at 8 m/s (dB(A) re 20 μ Pa)	$L_{p,60m}$	47
Immission Sound Pressure Level at 25 m at 8 m/s (dB(A) re 20 μ Pa)	$L_{p,25m}$	54

Unlike traditional horizontal axis wind turbines, the vertical axis helical VAWT will maintain its power curve in turbulent winds



The qr turbine is a recognised, iconic design with strong aerodynamic performance



Queen Elizabeth Olympic Park



UK Designed & Manufactured

