

# Qr6 Vertical Axis Wind Turbine

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

The brakes modified with enhanced anti – corrosive properties, increased power despite decreased energy consumption.

Military grade marine rating for aggressive environments.



## Design

### Rotor Size

- 5.5m tall, 3.1m diameter
- Swept area 16m<sup>2</sup>

### Material and colours

- Blades and Spokes: carbon Fibre
- Spool Tube: Galvanised Steel
- Static Tube: Galvanised Steel
- Turbines come in white (RAL9010)

### Masts

- Turbines are roof mounted on 6m tilt down masts, or ground mounted on 15m or 18m tilt down masts

### Turbine safety system

- Auto- shutdown sensors incorporated into the design to detect any uncharacteristic movement or impact to the turbine

## Key Product Advantages

### VAWT Benefits

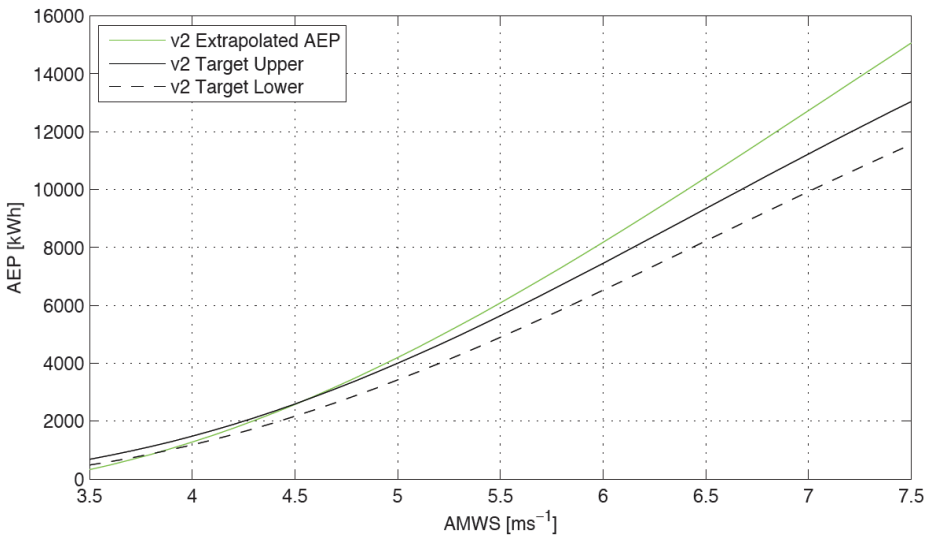
- Qr6 rotor can use wind from all directions, unlike traditional HAWTs which need to track the wind – therefore maximising efficiency
- A VAWT for the same swept area has a smaller plan area than a HAWT, making it more space efficient. An important consideration when siting on or close to buildings
- The helical swept blades help distribute loads evenly, resulting in minimal vibration making the Qr6 a better option for roof mounts.



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# Qr6 7.5 kW Vertical Axis Wind Turbine Factsheet

## Energy Curve



**Figure 11:** The extrapolated AEP forecast for v2 according to the IEC method, compared to the v2 "upper" and "lower" targets. The turbine beat the upper target from an AMWS of 4.55 m/s onwards.

## Generator

- The generator is a through bore permanent magnet motor/generator unit directly coupled to the rotor. It is used both as a generator and as a motor to spin the rotor up in response to initial or sharp increases in wind speed.

## Acoustics

- The aerodynamic helical blade design results in smooth, quiet operation.
- Due to the vertical axis geometry of the rotor, the blade tips are close to the axis of rotation and travel a shorter distance per revolution. This results in a lower blade tip speed further reducing noise levels.
- Revolutionary blade tip designed to shed noise.
- Unique aero-elastic blades design captures turbulent wind and absorbs vibration.

## Operating wind speeds

- Cut in at sustained 4.5 m/s, safety cut out at 25 m/s
- Survival wind speed 52.5 m/s
- Rotor Speed 100 – 260 RPM
- Minimum recommended annual mean wind speed 5.0 m/s

## Control Electronics

- A turbine controller, inverter, ofgem approved electricity meter and protection relay for grid connection are all provided as part of our Control Electronics Panel
- A three phase grid connection is required. Please contact us if you have requirements for single phase or off grid/battery version.

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