The Thinair Difference

The first thing people ask when they see a Thinair turbine is, “why a single blade?”

The answer is key to understanding the unique benefits that Thinair’s innovative and patented, single-blade,“teetering hub” design offers.

Traditionally, wind-turbines are constructed with multiple blades. Large commercial wind-turbines include complex and expensive mechanisms that enable blade angles to be varied to maximise energy production and protect blades from damage in heavy winds.

These mechanisms are too expensive for domestic wind-turbines. As a result domestic turbines generally have fixed-angle blades that are less efficient at harnessing the power of the wind and make the turbines more prone to stress and damage.

The patented “teetering hub” design of the Thinair turbine, by contrast, allows it to automatically adjust the blade’s angle according to changes in wind-speed. This innovation provides efficient operation in all wind conditions from the lightest breeze to strong gusts and automatically protects the Thinair from stress and damage, allowing its single blade to swing into a safe position in extreme wind conditions.

How It Works

1.
Blade in normal operation mode.

2.
Teetering hub changes blade angle to maximise generation from wind gusts.

3.
Hub teeters 90 degrees to protect the blade in storm conditions.

Powerhouse Wind

The Thinair 102 is the work of Powerhouse Wind, a team based in Dunedin, New Zealand, in the heart of the Roaring 40’s. We combine a wealth of product design, engineering and manufacturing experience with an innovative design philosophy.

We are passionate about the potential household wind generation offers for a sustainable world and are committed to our vision to build the best home-scale wind turbine in the world.

The Thinair Value

- Very good payback in remote off grid situations where the cost of establishing mains power is in the tens of thousands
- An alternative energy source to consumers who want to live in a more sustainable and environmentally friendly way
- A complimentary product to solar panels
- The simple design of the Thinair turbine has reduced the level of componentry, compared to other similar wind turbines, reducing the cost and allowing a more a competitive purchase price.

The Team

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thinair 102

INNOVATIVE SINGLE BLADE DESIGN.
QUIET, EFFICIENT, AFFORDABLE DOMESTIC WIND POWER.

Introducing **THINAIR 102**

Until recently, reliable turbines for small scale wind power generation have not been available. Existing household wind power generation was limited to turbines built, installed, and maintained by enthusiasts.

Powerhouse Wind's engineers started with a different approach. We applied our experience in designing high-volume, mass-market consumer products to designing and manufacturing a wind turbine purpose-built for use in a domestic environment. The result? TheThinair 102 turbine; reliable, simple and elegant.

Generating 3250kWh per year* the Thinair delivers most of the energy requirements of a well-designed energy-efficient home quietly, reliably and best of all sustainably.

* On sites with average wind speeds of 5-6m/s

On-Grid Or Off-Grid: The Choice Is Yours

If you are not connected to the electricity grid, your Thinair102 can store generated energy in batteries . An inverter can then convert this battery-stored energy into a standard AC electricity supply to power your house. Or, by consulting with your local energy provider, you may be able to connect your Thinair 102 to the grid using a grid-connect inverter. This enables you to feed the energy generated by your Thinair 102 into the electricity grid, and draw energy back from the grid when you need it. In effect you use the grid like a large battery, storing excess energy to be used when required.

Whichever option you choose, Powerhouse Wind can supply you with a complete solution including the Thinair 102 turbine, tower and inverter.

Is Thinair For Me?

The Thinair 102 is purpose-built for deployment in rural or semi-rural locations with a minimum section size of around 0.6 hectares (1.5 acre). The Thinair's unique design makes it perfect in turbulent wind conditions such as those found around buildings and trees in a domestic environment.

thinair

Revolutionising Domestic Wind Power

Its sleek, minimalist design makes the Thinair a visual asset complementing any environment.

It delivers most of the energy requirements of an energy-efficient home.

Innovative Hub Design

The patented "teetering hub" design maximises energy generation allowing the blade to auto-adjust to an optimal angle through a full range of wind speeds.

The teetering mechanism minimises wear-and-tear on the hub, housing and blade, and protects the blade from damage in strong winds - delivering greater reliability.

Integrated electronics provide automatic load generation balancing and sophisticated monitoring and reporting.

Unique Single Blade

Delivers significantly quieter operation without sacrificing generation capacity.

The single blade lowers manufacturing costs, delivering a more affordable solution.

Hi-tech, carbon-fibre construction combines strength and durability - resulting in lower blade weight and greater efficiency in variable wind

Innovative Hub Design

Unique Single Blade

Quiet and Reliable

Sleek Minimalist Design

THINAIR 102 SPECIFICATIONS

Turbine type	Horizontal axis, patented "teetering hub", down wind, stall regulated
Rotor diameter	3.6m
Swept area	10.2m²
Number of blades	1
Blade material	Carbon/glass fibre epoxy hybrid
Rated power	2kW
Rated wind speed	10m/s
Cut in wind speed	3.5m/s
Cut out wind speed	20m/s
Rated rotation speed	370rpm
Rotation speed range	60-400rpm
Alternator	Permanent magnet, axial flux, 3 phase, direct drive
Inverter input	200-400V DC
Annual energy output at 5m/s (average wind speed)	3250kWh
Control system	Powerhouse Wind electronic control
Turbine top of tower weight	70kg
Minimum recommended tower height	8m