

WIND TURBINE BLADE DESIGNS

Wind turbines are one of the earliest devices to be used for power generation. Over time, wind generators' designs have steadily improved, particularly when it comes to how the blades that spin the turbines' rotors have been built. Today, it's possible to produce much more power from much less wind than ever before, which is largely due to these improvements.

The earliest wind turbine blades were basically nothing more than large mats made from reeds. Their main drawback was a lack of durability. If the winds were too strong, these blades would often be broken.

The next step in the development of wind turbine blades was the cloth sail. This type of blade was combined with a vertical axis design to create some of the early windmills, which used wind power in order to perform grain processing functions.

The next major type of blade to be introduced was the wood blade, which was usually used in conjunction with a horizontal axis configuration. The impetus for the new turbine designs was the design of airplane blades, which had recently made important breakthroughs. The main advantage of wooden blades over previous models was that they could be both lighter and stronger, and therefore they were much better suited to generating energy in a wider variety of conditions.

This was the period in which wind turbines were first used as a means of producing electricity. Larger wind turbines were soon built to capitalize on these advancements, providing electricity in commercial settings.

In order to meet divergent needs, the differences between horizontal axis turbine blade designs and vertical axis ones started to become even sharper. In terms of horizontal axis blade design, most of the changes would take the form of adjustments in blade shape and pitch, materials, and the number of blades used per rotor.

3-blade designs are more or less the standard for horizontal axis wind turbines, as they usually provide a good balance of stability and rotor speed. Modern turbines feature composite blades, which are both lightweight and durable. Wind turbines with these blades can not only spin at higher speeds, but can also pick up low-speed winds, which older models couldn't do.

Furthermore, vertical axis wind turbines have seen a number of developments which have opened them up to a wide variety of applications. The rotation for these units is usually provided by designs that take advantage of wind drag or wind lift.

Vertical axis turbines are able to harness the power of the wind regardless of its direction. Horizontal axis turbines don't provide quite the same consistency of production. Their ability to produce power at lower elevation makes vertical axis turbines especially well suited to use in residential settings.

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