

Wind temperature of steam turbine generator

How does a steam turbine generator work?

A steam turbine generator works by heating water to extremely high temperatures until it is converted into steam, then the steam energy is used to rotate the blades of a turbine to create mechanical or rotational energy. This rotational energy caused by the high pressured steam turbine is used to generate electricity from an attached generator.

What temperature does a steam turbine operate?

Steam turbines in nuclear power plants, which are still being constructed in a number of countries outside of the United States, typically operate at about 7,580 kilopascals gauge and at temperatures of up to 295 °C to accommodate the limitations of reactors.

How fast does a steam turbine spin?

(A typical power plant steam turbine rotates at 1800-3600 rpm--about 100-200 times faster than the blades spin on a typical wind turbine, which needs to use a gearbox to drive a generator quickly enough to make electricity.)

How do you increase thermal efficiency of a steam generator?

The cycle thermal efficiency can be increased by increasing the average temperature of heat addition to the power cycle. This is achieved by increasing the operating pressure of the steam generator. However, this approach is normally associated with increased moisture content, making the turbine blade to erode in the last turbine stages.

How do turbines cool steam?

Turbines also vary in how they cool the steam that passes through them. Condensing turbines (used in large power plants to generate electricity) turn the steam at least partly to water using condensers and giant concrete cooling towers.

Can a wheel turbine rotate like a steam turbine?

The wheel turbines can't rotate at high speed like a steam turbine. These turbines have many advantages over other types of turbines such as steam turbines produce inexpensive electricity, and steam energy doesn't pollute the environment. Due to these reasons, these turbines use reciprocating engines as prime movers in large power plants.

The rotor in a turbine generator could be attached to a set of wind turbine blades, a set of reaction or impulse steam turbine blades, hydro-turbine blades, or a gas engine. (2) The turbine shaft will begin to rotate with the rotor, causing all of ...

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