

Hydraulic transmission system of wind turbine

Which transmission system is used in wind turbine?

Normally, the mechanical transmission system (gear train) is used to transmit the power in wind turbine. But this transmission is not suitable in large scale power production. Currently, hydraulic power system has drawn an attention as a power transmission system in the wind turbine field.

What is power transmission in a wind turbine rotor?

The power transmission from the turbine rotor to the generator is an important and integral part of the wind turbine system. Generally, the power transmission unit is of two types, e.g., mechanical transmission system and hydrostatic power transmission system (HST).

What is a wind turbine with power hydraulic system?

Wind turbine with power hydraulic system In Fig. 6, the hydraulic power transmission unit is composed by an accumulator, control valve, nozzle and a priority flow divider valve to attain a stable power output from the offshore wind turbine as the input wind velocity is unstable (refer Fig. 7).

Does hydraulic power transmission work for variable speed wind turbines?

Laguna et al. had presented a closed-loop hydraulic power transmission (contained hydraulic pump, hydraulic motor, water pump and nozzle) for variable speed wind turbine. The results were compared with reference gear train transmission to analyze the dynamic performance in terms of fluctuation of power and torque.

Can mechanical power transmission system reduce power fluctuation in wind turbine?

The following conclusions can be drawn from this survey. 1. For large scale power production in wind turbine, the mechanical power transmission system is unsuitable. Also, reduction of the power fluctuation in wind turbine by the use of mechanical power transmission system is difficult. 2.

Why is hydraulic transmission important for wind power generation?

With the development of large-scale wind power generation and offshore wind energy, reducing the nacelle weight and the gear failure rate is increasingly important. Hydraulic transmission is characterized by its flexible layout and transmits large energy with small volume and weight, which suits the demands of wind power generation.

Oct 1, 2024 Abstract As wind turbines become larger and move into deeper sea, their operating environment is getting more and more harsh, which puts higher stability requirements of the ...

A wind power system integrates different engineering domains, i.e. aerodynamic, mechanical, hydraulic and electrical. The power ...



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