

FL10KWPITCHDOWN

Variable Pitch Wind Turbine

1. FL10KWPITCHDOWN variable pitch wind turbine synopsis:

Keyword: Low wind speed start-up, Variable Pitch Regulation, Unnecessary human monitoring

Variable pitch wind turbine, newly developed, is a patented product and pioneer in domestic. Wind turbine use independence-researched mechanism centrifugal technologies to come true variable pitch function, tracking rotor speed and synchronously regulate blade pitch automatically, to keep wind turbine working safety at rate wind speed and to keep power outputting stably and continuously even in the situation of facing hurricane or strong wind and without human monitoring.

2. Variable pitch wind turbine parameters:

Rotor diameter: 8.0m

Blades quantity: 3pcs

Direction: always downwind

Blades material: Carbon fiber reinforced plastic

Rated output: 10000W

Maximum output: 12500W

working voltage: DC240V/500V,AC220V/380

Annual average energy production: 20MWH (in rate 5m/s wind speed)

working wind speed: 3-35m/s

Initial wind speed: 2.0m/s

Nominal wind speed: 10.8m/s (22.5mph)

Storm-stand: up to 55m/s

Max rotate speed: 160r/min

Wind turbine type: Three-phase, PMG Alternator

Working temperature: from -40 to +60 C

Blade Pitch Control Varies Pitch

Over-speed Protection aerodynamic brake+ electromechanical disc brake

Speed regulation methods: Yawing and electric magnet Switch

Gearbox: None, Direct Drive



3.Characteristics Features:

1. Optimization aerodynamic design at blade: high efficiency, low noise.
2. Centrifugal variable pitch controlled mechanism: 3m/s low wind speed startup; 4-11m/s wind speed, tracking wind turbine rotor speed to synchronously adjust blade angle at optimum tip-speed-ratio, high efficiency running; over rated wind speed 10.8m/s, wind rotor never goes to over speed and rotate stably; 3-25m/s wind speed, wind turbine run very smoothly.
3. Direct drive permanent magnet generator, low startup resistance moment, constantly running ability of over loading 1.5 times, maintenance free for more than 30000 hours.
4. Safety control: Have aerodynamic brake, electric magnet brake, mechanical brake and manual stop mechanism. Adjust blade tip angle automatically at negative value when encountering strong typhoon or and the blade at stalled condition and meanwhile wind rotor rotating speed was controlled and reduced.
5. Sealed slip ring, no cable twist; Carbon brush and slip ring are clean; good conductivity for electricity transferring.
6. Streamline design, and handsome appearance
7. Long acting anticorrosive treatment, guarantee no corrosion in 15years.

5. Variable Pitch Principle:

The electrically controlled pitch system consists of a pitching mechanism and a direct drive, brushless servo motor. If the pitch motor speed is the same as the turbine speed there will be no change in blade angle. If the speed of the motor is increased with respect to turbine speed, the angle between the blade and the rotation axis will increase and conversely if the speed of the motor is decreased the blade angle will be reduced. In case of a critical failure or loss of power, the pitch motor is short-circuited. This will cause the blades to be automatically feathered by the rotation of the rotor, which will then stop. (Pat.pending)

