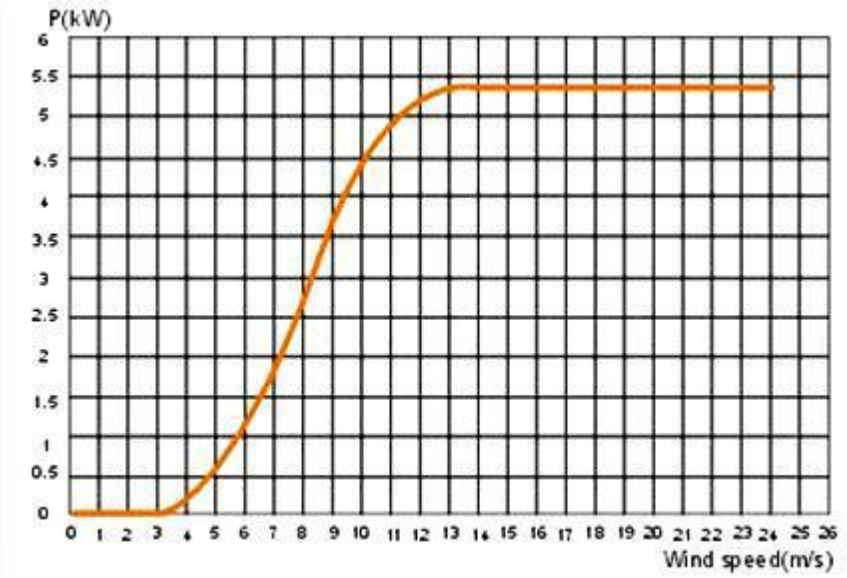
FL5KWPITCHDOWN Variable Pitch Wind Turbine

1.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.

4. 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 10.5m/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:
Under the wind speed of 0~3m/s, the turbine blade remain static, and the angle*1 formed between the blade and turbine plane is Bo (*1= Bo); under this angle, the blade is most easily to be started up. As long as the wind speed reached 3m/s, the blades will begin to rotate, during the rotation, the outermost edge of the blade will be driven by the centrifugal force generated by the rotation of the blade to tilt toward the turbine plane, the aforementioned angle*1 will decrease until 0 o when the blade is in parallel with the turbine plane; at this angle, the turbine has nearly reached it's rated output power. When the wind speed is between 11m/s-25m/s, the blade will keep adjusting it's position forth and back ward slightly to let the angle*1 fluctuate a little big but maintain at around 0 o roughly, so as to stabilize it's rated power. Within the wind speed of 25m/s-50m/s, when the wind has exceeded it's rated speed, the

wind will keep drawing the blade by the centrifugal force, so the angle*1 will continue to decrease and turn into a negative angle*1= -Bo (PS; Bo and -Bo is not the same), under this negative angle, the rotation of blade will produce a resistance on the rotation of turbine blade to slow down the rotation and protect the wind turbine from over speed operation, the maximum RPM of the turbine will be no more than 277RPM. (A B C: 3pcs blades a b c: 3pcs centrifugal hammers.)



Rotor diameter: 5.6m
Blades quantity: 3pcs
Direction: always downwind
Blades material: Glass fiber reinforced plastic
Rated output: 5KW
Maximum output: 5.4KW
Annual electricity production generate 11880KWH [base on average 5m/s w-speed]
working voltage: DC240 /DC400/AC220V
working wind speed: 3-30m/s
Initial wind speed: 3.0m/s
Nominal wind speed: 10.5m/s
Storm-stand: up to 60m/s
Rated rotate speed: 240r/min
Wind turbine type: Three-phase, PMG Alternator
Working temperature: from -40 to +60 C
Blade Pitch Control Variable Pitch
Stop methods: Positive blade pitch
Speed regulation methods: Passive pitch
Gearbox: None, Direct Drive