


AirKaliber

에어칼리브 20KW 풍력발전기

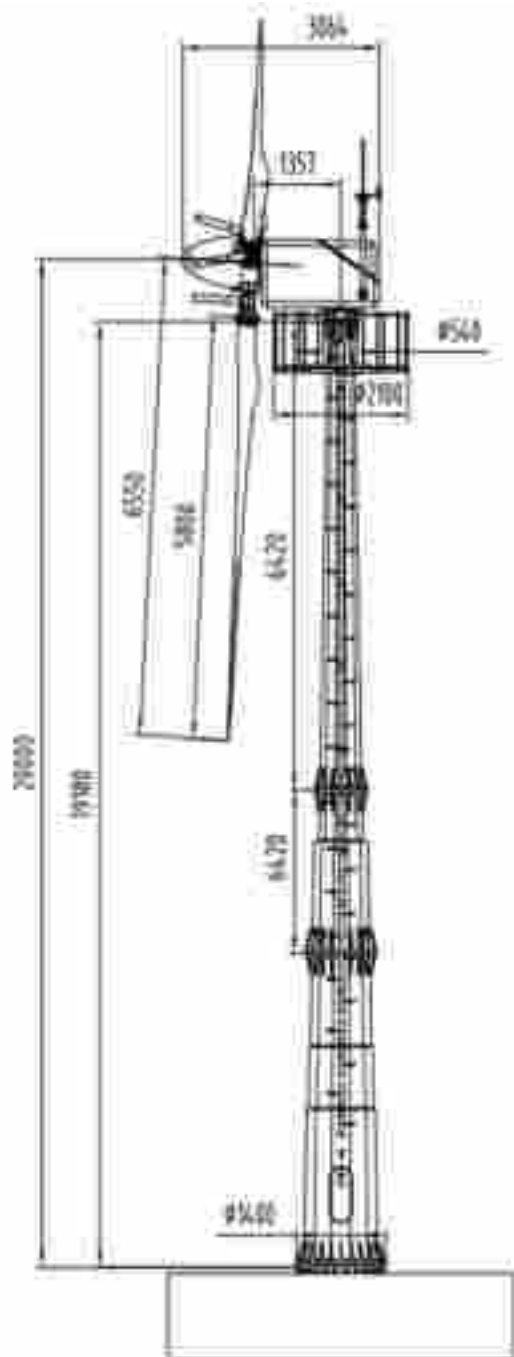
Model: AH-20KW

(VARIABLE PITCH WIND TURBINE)

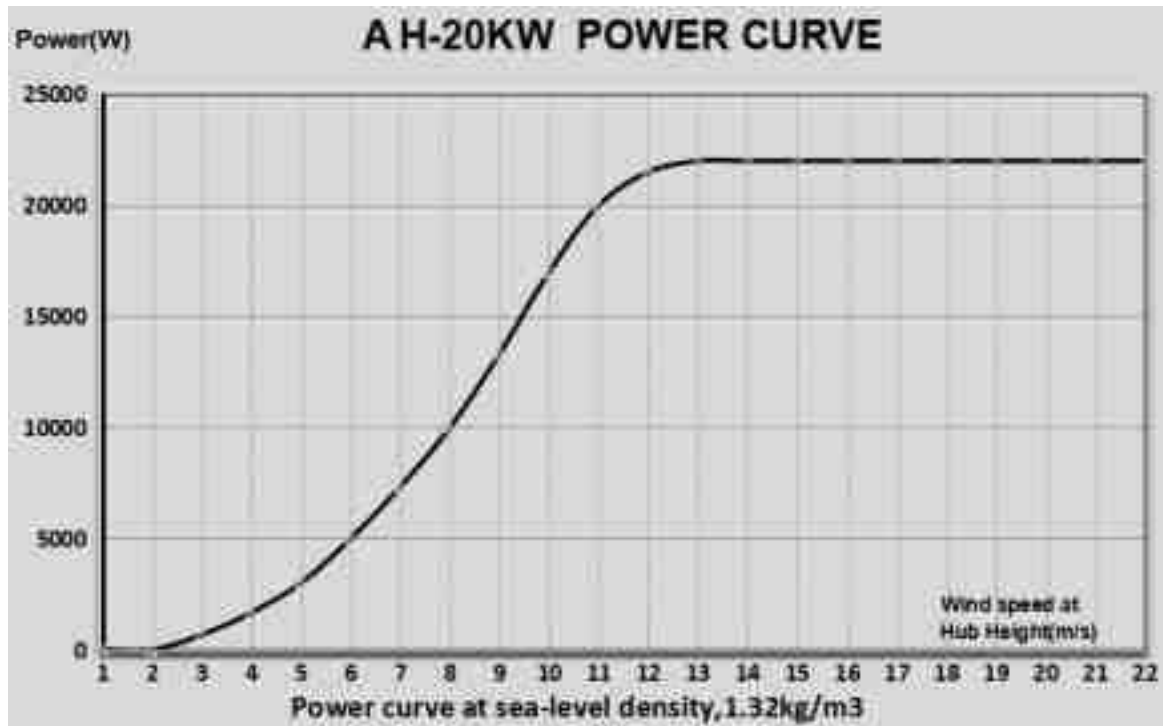
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- 30%** More energy output
 - 3-5**
years Return on Investment
 - 30_{m/s}** Max working wind speed
 - 60_{m/s}** Safety wind speed
 - UL**
Intertek IEC61400-2/IEC61400-12
Verified wind farm test report

Technical specification

Model	AH-20KW
Performance	
Rated Power	20
Max Power	22kW
Start Wind Speed	2.5m/s (5.59mph)
Rated Wind Speed	11m/s(24.6mph)
Working Wind Speed	3-30m/s (6.71-67.2 mph)
Safety Wind Speed	60m/s(133.8mph)
Physical Parameters	
Blades Length	4.5M(14.8ft)
Blades Rotor Diameter	9.8M(32.1ft)
Blades Material &Quantity	FRP / 3PCS
Mill Weight	1210kg
Swept Area	75.39 m²
Tower Height	≥20, Hot dip galvanized
Generator Parameters	
Rated Speed	175 RPM
Rated Working voltage	DC280V/DC450V
Start Torque	<0.3N.M
Generator Type	Three-phase permanent magnet generator
Wind Answering Method	Up wind+yawing
Stop Method	Pitch brake + active yaw
Speed Mode	Pitch + active yaw + electromagnetic brake
Protection Grade	IP54
Working Temperature	-20--+50℃
Life time	20 Years



Power Curve



Annual Energy Production

Annual Wind Speed(m/s)	3	4	5	6	7	8	9
Production (kWH)	5840	14600	26280	43800	64240	87600	116800
Annual Wind Speed(m/s)	10	11	12	13	14	15	16
Production(kWH)	148920	175200	188340	192720	192720	192720	192720

This data will have $\pm 10\%$ difference according to local condition.

Sound Data

Test position: At 15m away from generator (average value of 3 point-rears, left, right)

Wind Speed (m/s)	3	4	5	6	7	8	9	10	11
Sound(dB)	1.35	3.08	6.22	9.45	13.44	22.09	32.55	36.45	37.22
Wind Speed (m/s)	12	13	14	15	16	17	18	19	20
Sound(dB)	45.33	45.22	45.33	45.43	45.54	45.66	45.76	45.85	46.00

Note: The sound value includes wind noise.

Why choose AH-30KW Wind turbine?

★ Leading technology-intelligent control, strong system scalability

1. The world's best wind power control technology is combined with the self-developed variable pitch technology.
2. The hardware design uses international well-known brands, and the software uses redundant control strategies.
3. It can achieve good compatibility with various well-known brand converters and remote modules.

★ High security-continuous operation around the clock to achieve unattended operation

1. The speed of the wind wheel is controlled, and it runs continuously and stably under severe wind conditions.
2. More than a dozen redundant control strategies ensure the safety and stability of the system in all climates.

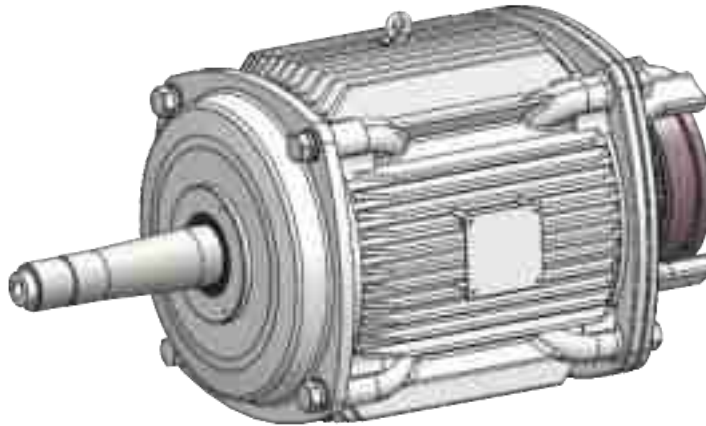
★ A lot of power generation-variable pitch control, high-efficiency output, power generation up to 30%

1. Above the rated wind speed, the pitch angle of the blades can be adjusted to achieve continuous full power output.
2. The working wind speed range is large (3-25m/s), and the effective running time is long.



Introduction to the structure and performance of wind turbines

1. Generator characteristics

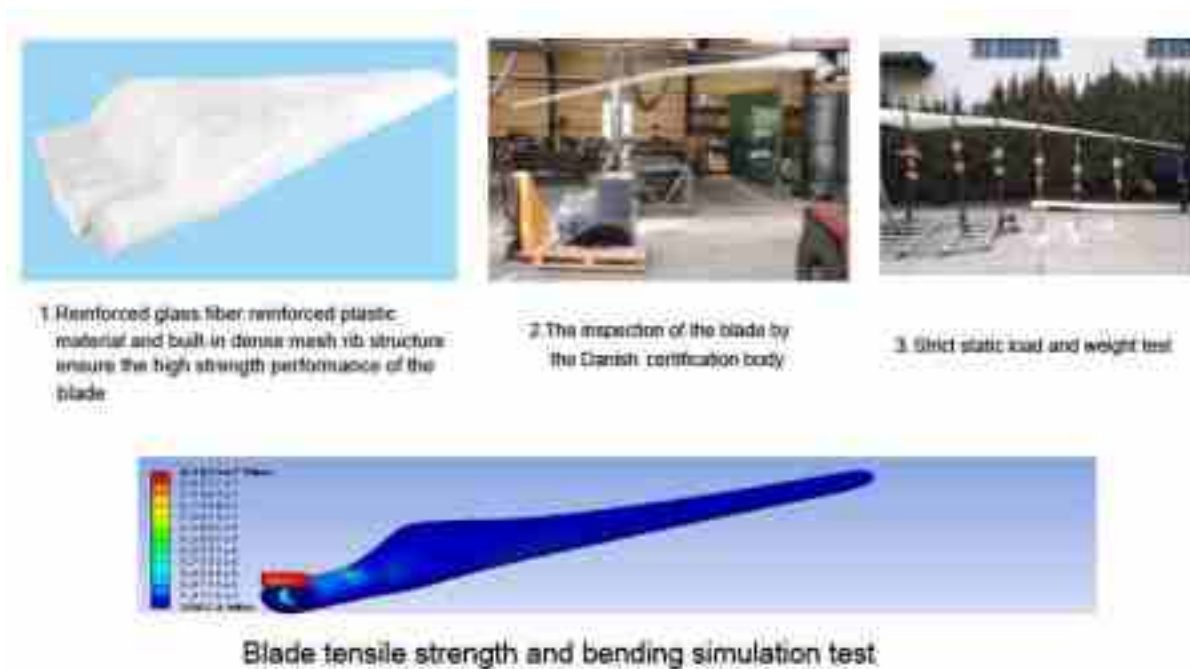


Type: Three-phase AC permanent magnet synchronous direct drive

Protection class: IP54

Insulation class: Class F

2. Blade characteristics

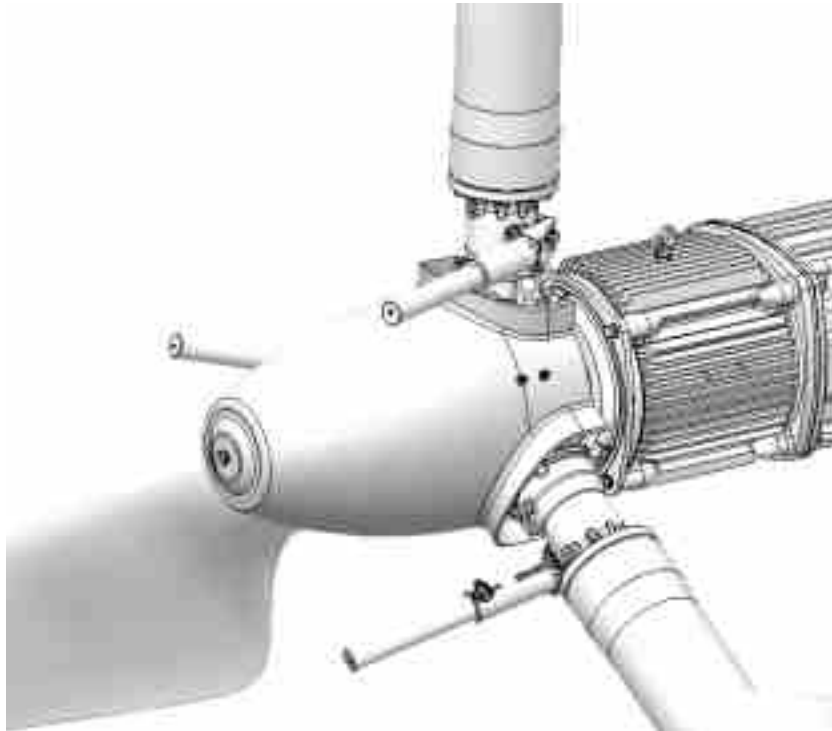


Material: reinforced glass fiber reinforced plastic

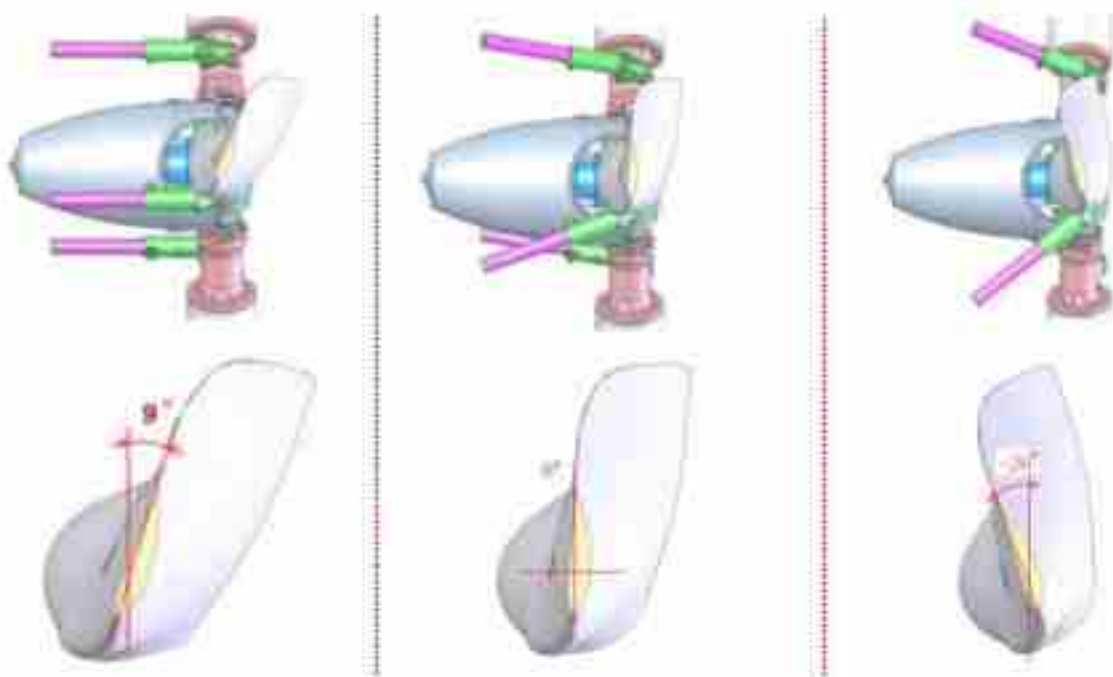
Advantages: long service life, high efficiency, low noise

3. Technological innovation

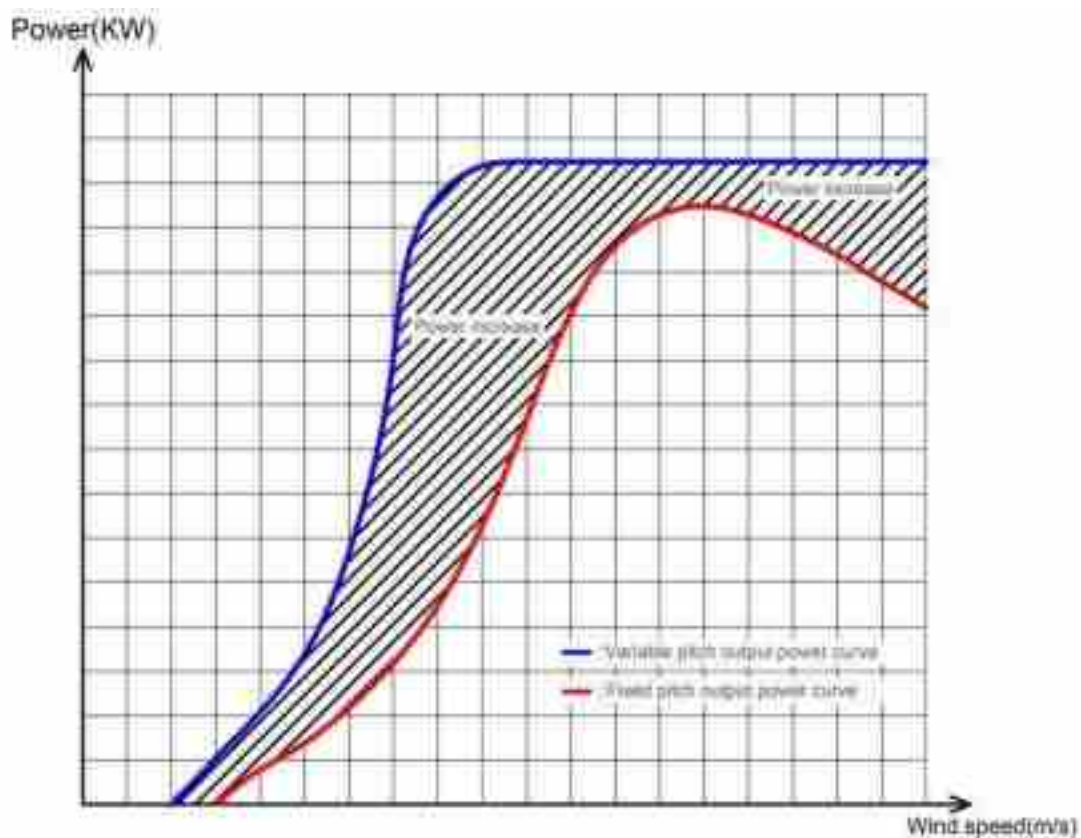
3-1. Using the world's leading mechanical centrifugal variable pitch technology, the average annual power generation is 30% more.



- (1) Large initial blade angle ($+9^\circ$), excellent acceleration performance, start at low wind speed of 2.5m/s;
- (2) Below the rated wind speed, the wind turbine outputs efficiently;
- (3) Above the rated wind speed, adjust the pitch angle so that the rotor speed is maintained near the rated speed and the power output is stable.



3-2. The use of variable pitch technology has greatly improved the efficiency of wind turbine power generation, The graph of increased power is shown below:



4. Intelligent control, safety and stability

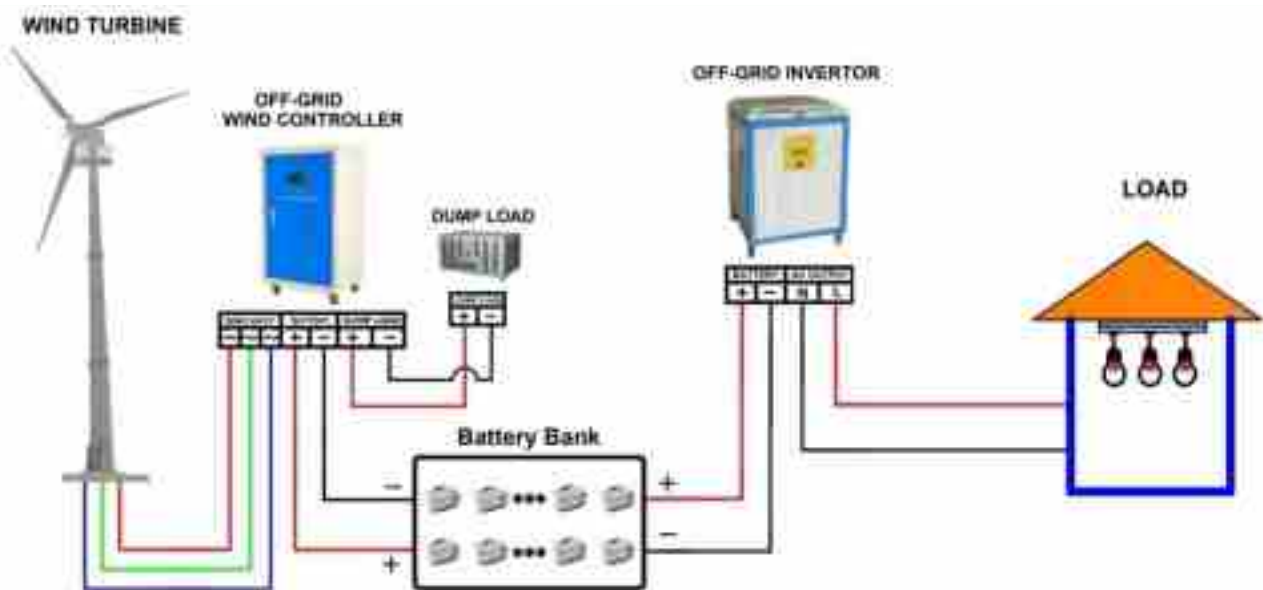
4-1. Intelligent control

- (1) The main control of 30kW variable pitch wind turbine is a new generation of intelligent electrical system developed on the basis of absorbing the world's excellent electrical control technology of wind turbines, combined with the characteristics of mechanical centrifugal variable pitch technology, with stable operation and strong anti interference ability , Strong scalability.
- (2) The use of redundant control strategies and comprehensive safety protection measures ensure the safe and reliable operation of the wind power system under any working conditions.

4-2. Remote monitoring

- ★ Real-time control of unit operating status and power generation data.
- ★ Remotely issue instructions to control the operation of the unit.

SYSTEM SOLUTION



Solar & wind hybrid Controller

- ◆ PWM stepless unloading mode
- ◆ Perfect protection and alarming function
- ◆ LCD display function, visually display
- ◆ A multiple communication interface selection



Inverter

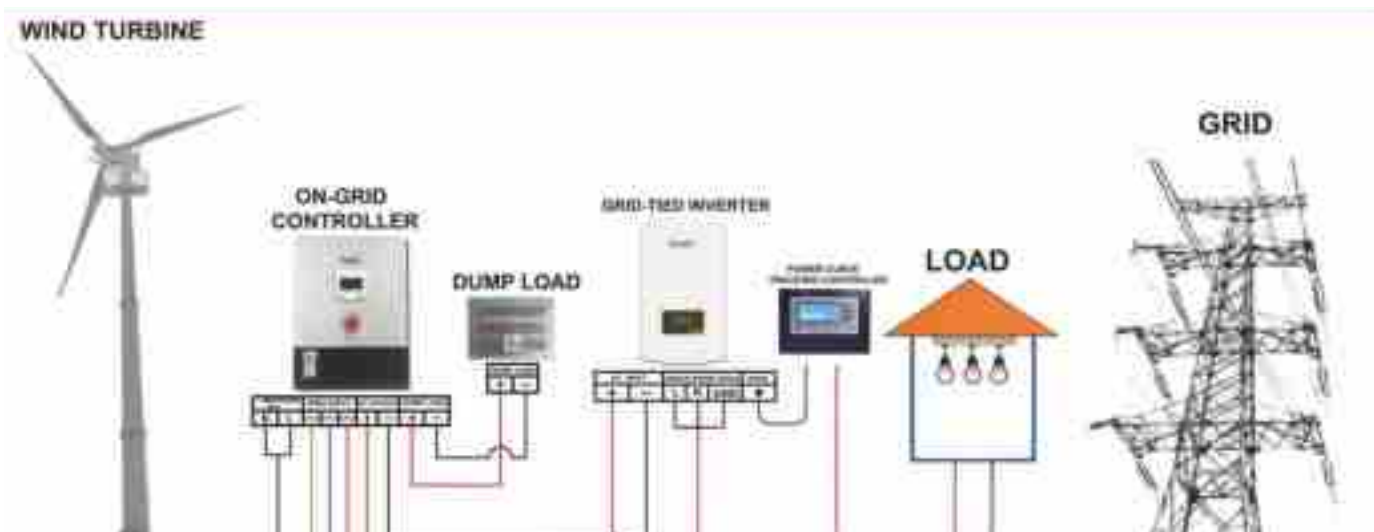
- ◆ Pure sine wave output
- ◆ Adopts SCM to control
- ◆ Perfect protection and alarming function
- ◆ LCD display function, visually display



Gel storage battery

- ◆ Professional for wind and solar power use
- ◆ Working temperature: -40-60°C
- ◆ Design lifetime 8 years

On-grid system also available:



Grid-Tie Controller

- ◆ PWM & three-phase protection system
- ◆ Strong wind protection
- ◆ Grid-connected inverter disconnected protection
- ◆ Lightning protection device
- ◆ LED status indication
- ◆ Voltmeter indication
- ◆ Emergency stop switch
- ◆ Manual three-phase load discharging switch



Grid-Tie Inverter

- ◆ MPPT (Maximum Power Point Tracking) technology
- ◆ Power curve can be setting
- ◆ Input voltage range wide: 30V-600V
- ◆ RS32/485 WIFI communication
- ◆ Pure sine wave output, Auto grid tracking synchronized
- ◆ Anti-island protection, non-polluting power grid, no impact
- ◆ Certified to UL 1741, AS4777, G83/1, CE, TUV

❖ Institutional test report & certification



Wind turbine installation process and engineering display



20kW In Qingdao



20kW In Japan



30kW In Shanghai



30kW In Xinjiang



30kW In Inner Mongolia



30kW In Iran



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