H4.6-3kW/H6.4-5kW/H8.0-10kW/H9.0-20kW
Technical Overview

HUMMER

ANHUI HUMMER DYNAMO CO., LTD

www.chinahummer.cn

H4.6-3kW/H6.4-5kW/H8.0-10kW/H9.0-20kW Wind Turbine System

- Medium Model Project -

Hummer is the manufacture specialized in small-to-medium wind turbine. Hummer wind turbine has passed ISO9001-2000 test and is applied in color TV, refrigerator, freezer, water pump, electric tools and electromotor within the corresponding wattage.

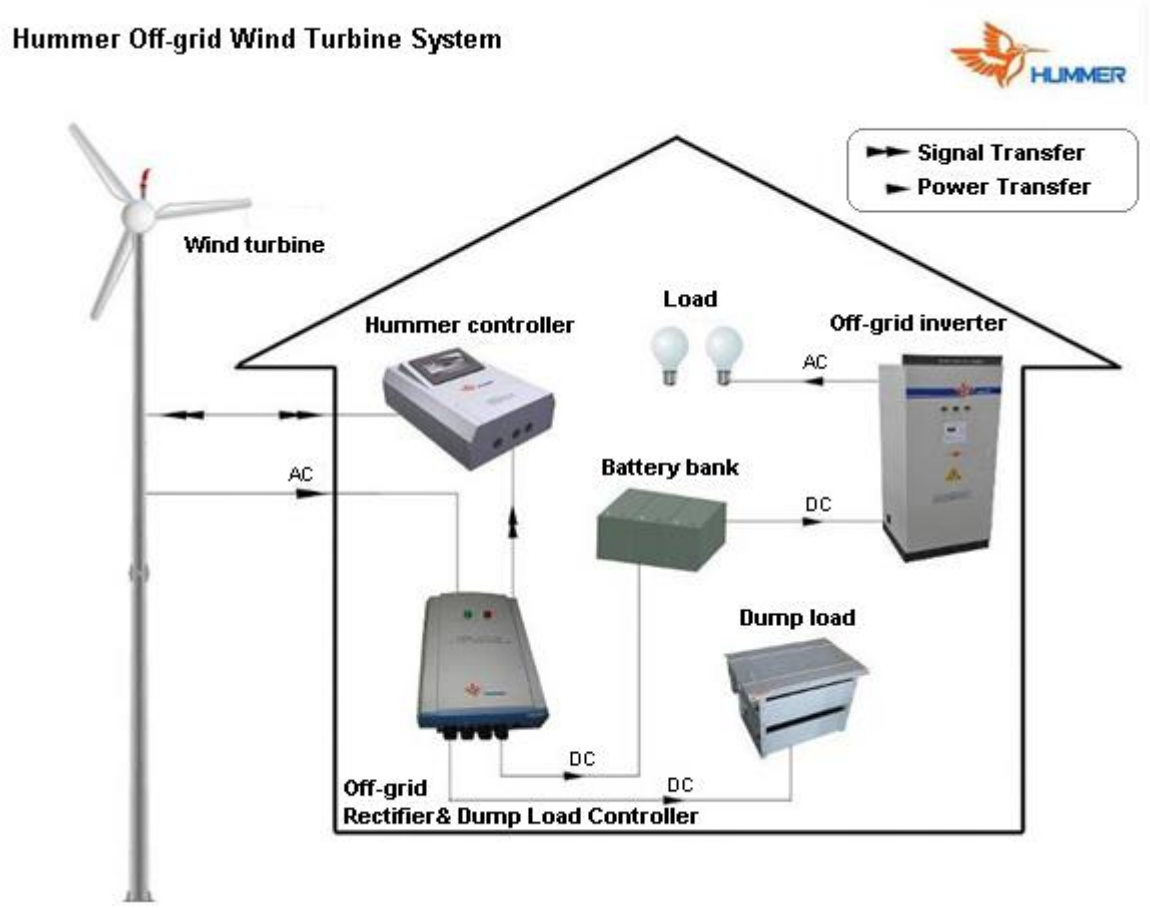
“SMS pattern” is positioned as the Hummer business strategy—science and technology self-innovation as the basis, marketing strategy as the method, service for customers as the guarantee. Hummer pays more attention to brand raise and enterprise cultural construction, and always keep the enterprising spirit of self-innovation.

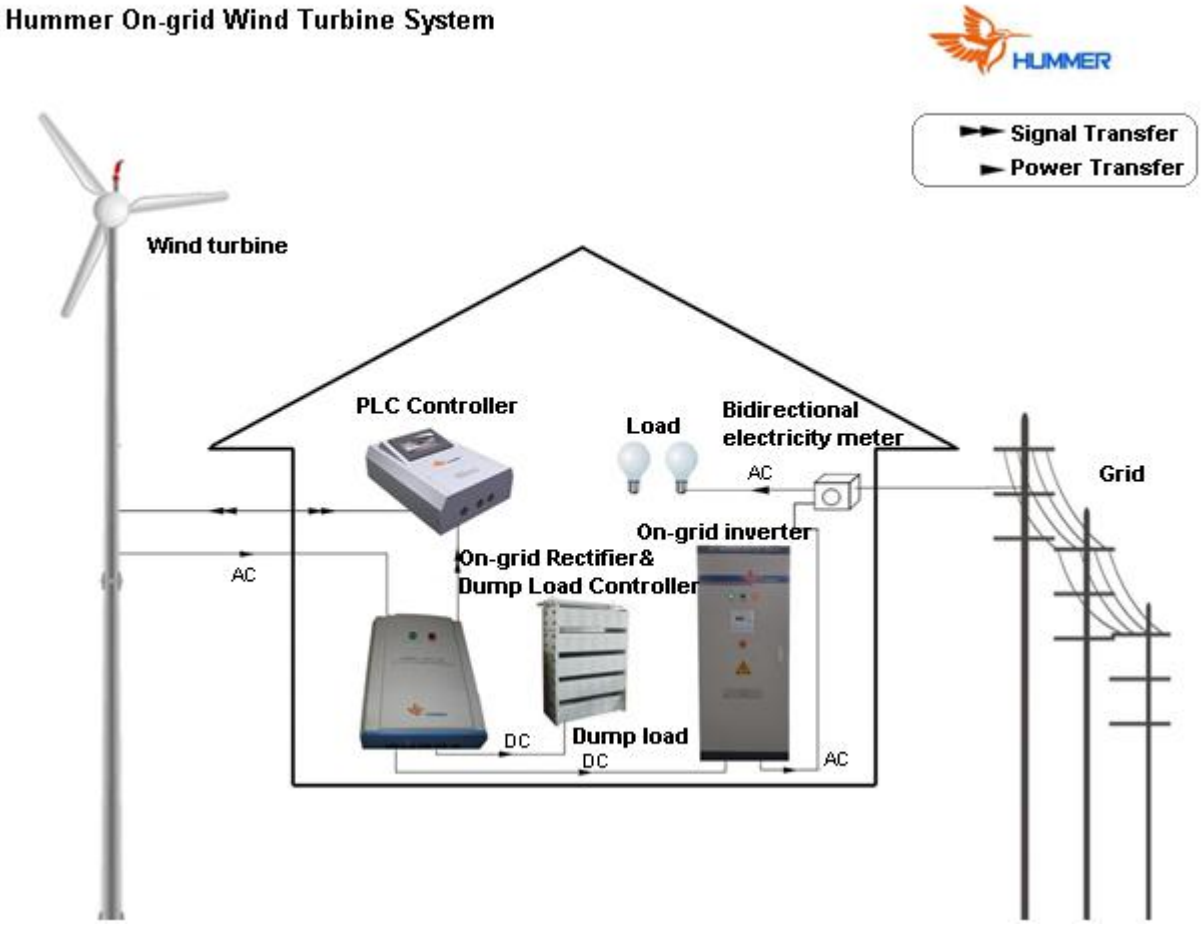
Applicable model: H4.6-3kW/H6.4-5kW/H8.0-10kW/H9.0-20kW

This system is made of exquisite materials and adopts a compact structure. The generator is so small in size that it can be put inside the nose cone to reduce air resistance and improve the output efficiency. Yaw shaft is one important constituent part of the wind turbine control system. It not only has the function of connecting generator and tower, but also collecting variety of systematic data including wind direction environment, wind speed and generator temperature, etc. Besides, generator can execute demands from CPU center to achieve self-protection and automatic face wind direction, etc.

Hummer 3kW/ 5kW/ 10kW/ 20kW wind turbine can be applied in both on-grid and off-grid systems. The output can be single-phase or three-phase AC.

How does 3kW, 5kW, 10kW, 20kW Wind Turbine System work?





Features

SCF Supercritical Generator

Hummer wind generator adopts SCF supercritical technology which won the gold award in the 37th Salon Eureka in Brussels. This technology reduces the weight and size of traditional generator by as much as two-thirds and promotes to improve its efficiency from 0.22~0.28 to 0.4, which ensures the operation of wind turbine under the condition of gentle breeze.

SKF Bearings

Hummer wind turbine adopts two SKF (Svenska Kullager Fabriken) bearings which are produced by one of the largest bearing manufacturers in the world. The performance of bearings is better after their inner and outer sizes have been undergoing the stabilization treatment. The bearings can operate at high temperature from 150 to 300 degrees and at low temperature from -50 to -20 degrees. In addition, with the perfect internal geometric structure and the optimal roughness, they not only process higher rated load capacity, but also achieve a great decrease of maintenance costs and a lifetime endurance comparing with the ordinary ones that need to be changed every two or three years.

PLC Integrated with Siemens Module

The control system of Hummer wind turbine adopts smart touch-screen PLC (Programmable Logic Controller) which in integrated with Siemens controlling unit. PLC will alarm and adjust the abnormal running status of wind turbine automatically, timely and efficiently. Siemens module is highly reliable to our PLC which can be testified by our worldwide customers.

Low Noise

Hummer wind turbine rotor blade adopts the airfoil design, which is compliance with the aerodynamic standards. It enables to provide a more attractive appearance and higher efficiency. Furthermore, it reduces the noise production as much as possible.

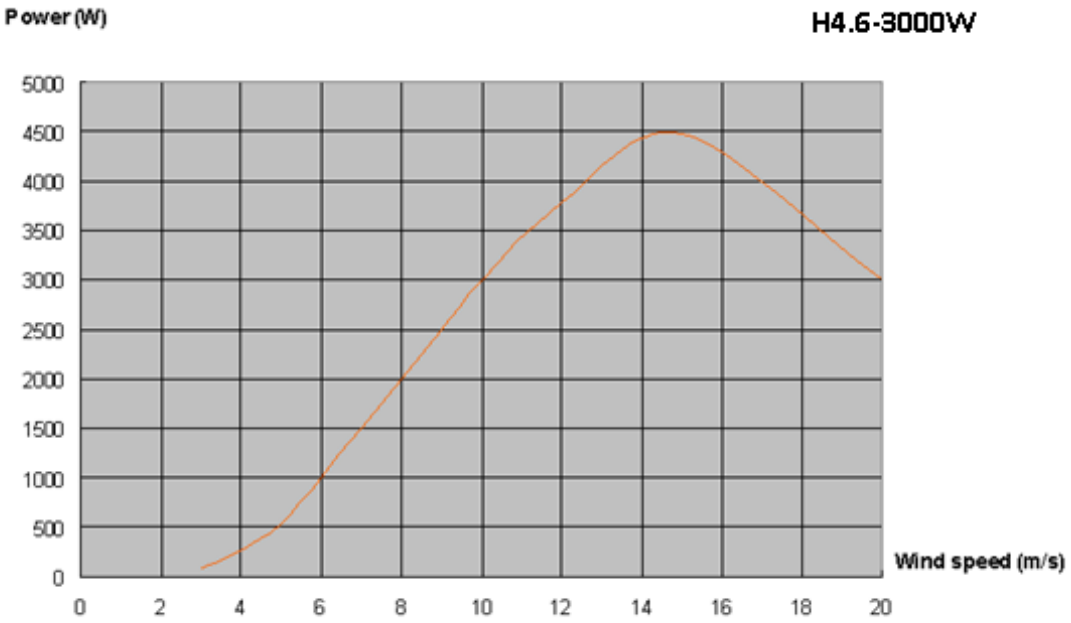
Triple Braking Protection

Hummer wind turbine generally adopts yawing system and electromagnetic braking system to regulate the rotation of wind turbine within a safe speed range. Besides, customers can order hydraulic braking system as a third protection. It is easy and convenient to shut down the whole system both manually and automatically.

www.chinahummer.cn sales@chinahummer.cn

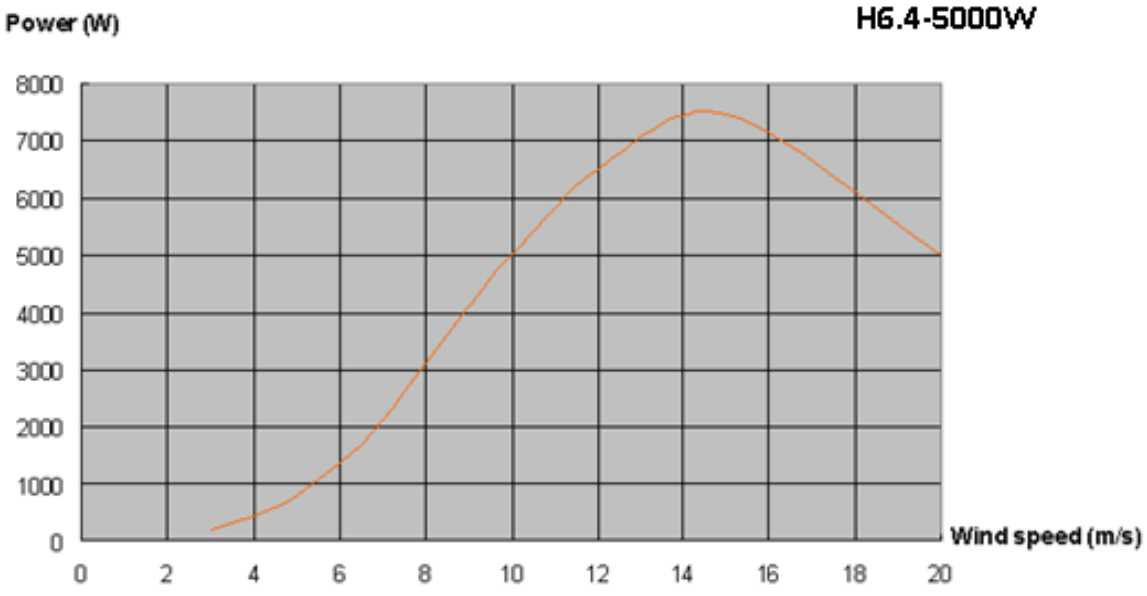
H4.6-3000W Technical Parameters and Working Curve

Operating data	Rated power	3000W
	Maximum output power	4500W
	Battery bank voltage	180Vdc
	Cut-in wind speed	2.5m/s
	Rated wind speed	10m/s
	Working wind speed	3m/s-25m/s
	Survival wind speed	50m/s
	Generator efficiency	>0. 8
	Wind energy utilizing ratio	0.4Cp
Generator	Generator type	Permanent Magnet Alternator
	Generator weight	71.8kg
Rotor blades	Blade material/quantity	GRP/3
	Blade diameter	Φ4.8m
Protection	Speed regulation method	Yawing + Electromagnetic brake (Optional Hydraulic Brake)
	Shutting down method	Manual + Automatic



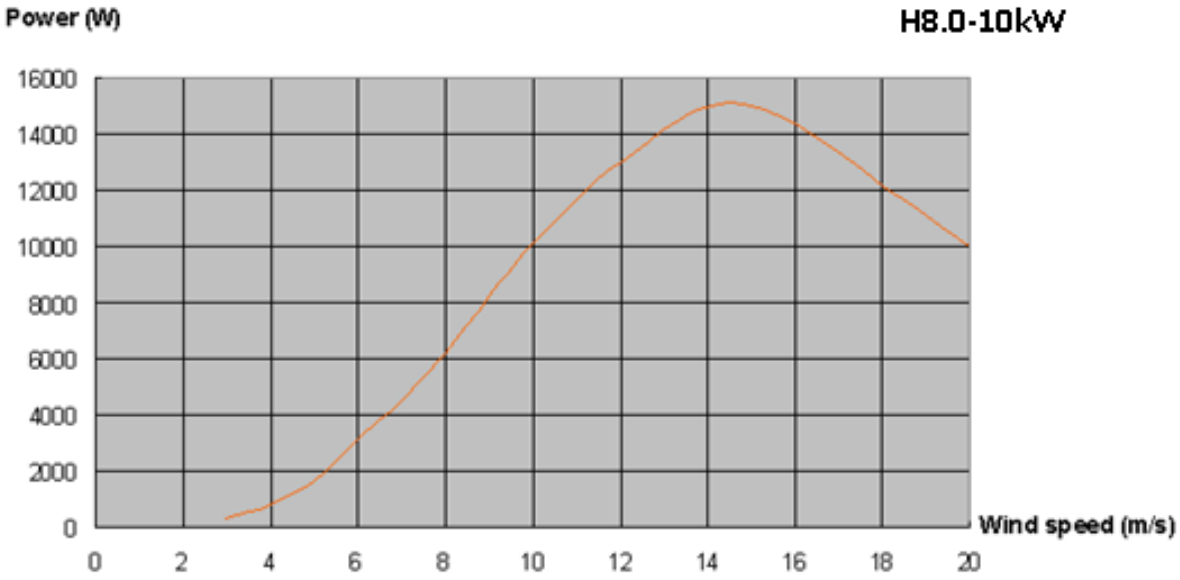
H6.4-5000W Technical Parameters and Working Curve

Operating data	Rated power	5000W
	Maximum output power	7500W
	Battery bank voltage	240Vdc
	Cut-in wind speed	2.5m/s
	Rated wind speed	10m/s
	Working wind speed	3m/s-25m/s
	Survival wind speed	50m/s
	Generator efficiency	>0. 8
	Wind energy utilizing ratio	0.4Cp
Generator	Generator type	Permanent Magnet Alternator
	Generator weight	147kg
Rotor blades	Blade material/quantity	GRP/3
	Blade diameter	Φ6.4m
Protection	Speed regulation method	Yawing + Electromagnetic brake (Optional Hydraulic Brake)
	Shutting down method	Manual + Automatic



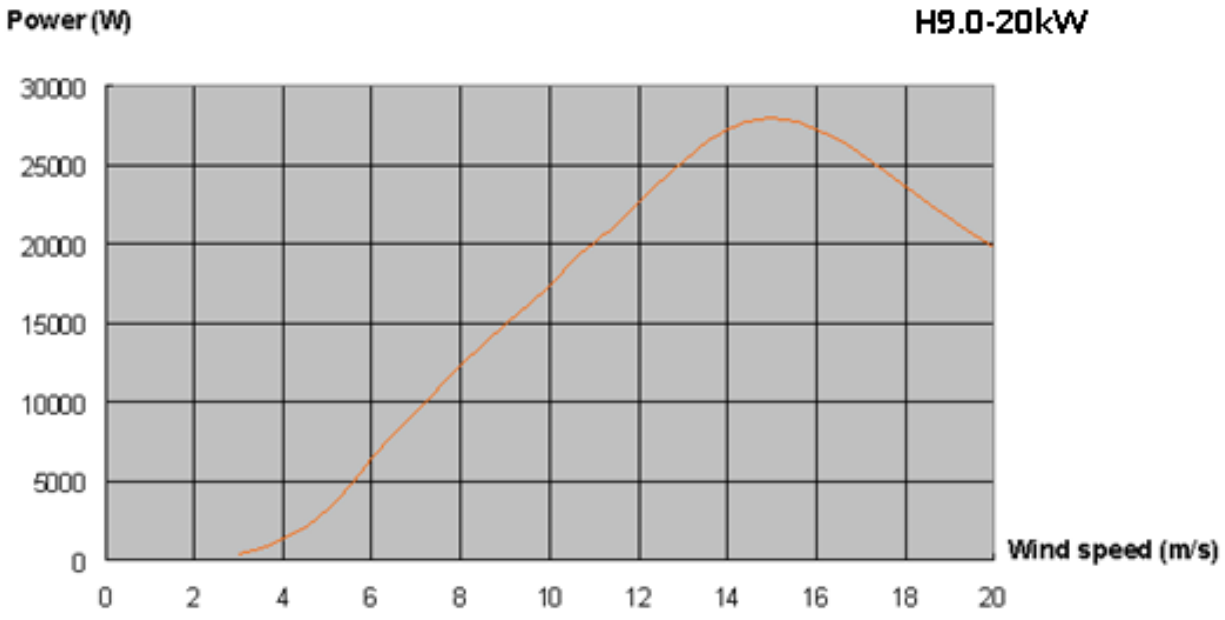
H8.0-10000W Technical Parameters and Working Curve

Operating data	Rated power	10000W
	Maximum output power	15000W
	Battery bank voltage	240Vdc
	Cut-in wind speed	3m/s
	Rated wind speed	10m/s
	Working wind speed	3m/s-25m/s
	Survival wind speed	50m/s
	Generator efficiency	>0. 8
	Wind energy utilizing ratio	0.4Cp
Generator	Generator type	Permanent Magnet Alternator
	Generator weight	287kg
Rotor blades	Blade material/quantity	GRP/3
	Blade diameter	Φ8.0m
Protection	Speed regulation method	Yawing + Electromagnetic brake (Optional Hydraulic Brake)
	Shutting down method	Manual + Automatic

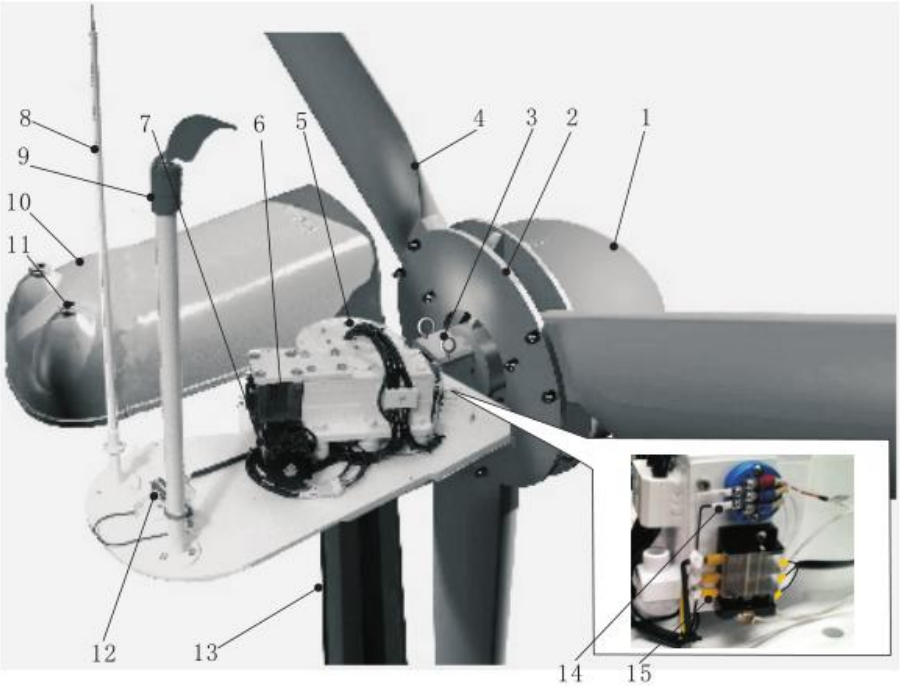


H9.0-20000W Technical Parameters and Working Curve

Operating data	Rated power	20000W
	Maximum output power	28000W
	Battery bank voltage	240Vdc
	Cut-in wind speed	3m/s
	Rated wind speed	11.5m/s
	Working wind speed	3m/s-25m/s
	Survival wind speed	50m/s
	Generator efficiency	>0. 87
	Wind energy utilizing ratio	0.4Cp
Generator	Generator type	Permanent Magnet Alternator
	Generator weight	496kg
Rotor blades	Blade material/quantity	GRP/3
	Blade diameter	Φ9.0m
Protection	Speed regulation method	Yawing + Electromagnetic brake /Hydraulic Brake
	Shutting down method	Manual + Automatic



Structure



NO.	Name	NO.	Name
1	Generator body	9	Dogvane
2	Blade pressing plate	10	Nacelle protection cover
3	Lifting ring (applicable for 5kW,10kW,20kW)	11	Water-proof gland
4	Blades	12	Signal wire terminal block
5	Gearbox	13	Tower body
6	Speed reducer	14	Generator temperature transducer
7	Yaw servo motor	15	Wiring terminal for Generator output cable
8	Lightning rod (optional)		

Generator Part

Hummer generator part is composed of the patented SCF generator, nose cone and protection cover. The state-of-the-art SCF supercritical generator is installed in the hub and is easy to radiate heat and reduce wind resistance. Made of efficient magnetic materials, special copper alloy, high-strength stainless steel and aeronautic aluminum alloys, the generator part is extremely light in weight, small in size and high-efficiency in power producing.

Nose Cone & Protection Cover

Both of the nose cone and protection cover are made of the reinforced aluminum alloy. Nose cone is fixed in front of the rotor blades to reduce the wind resistance and radiate the heat that is produced by the generator. Protection cover between the rotor blades and the nose cone is used to provide extra safety to the generator.

SKF Bearings

Two SKF bearings ensure the reliability and the longevity of our generator.

- Wide temperature ranges: normal operation at the high temperature (150-350ºC).
- Long life span, its working life can reach up to 60000-100000 hours.
- Users may not change the bearings during use. This can greatly reduce the maintenance costs.

Flange & Blades

Our Hummer flange is made of fine steel and used to fix the blades to the rotor. The blades are made of glass reinforced plastic and can efficiently convert the wind energy into the mechanical energy. Three blades are in one set and each set has passed the strict balance test before shipment. It is important to fix the blades together that belongs to the same set to the flange and never mix them up with other blades that belongs to another wind turbine.

Yaw Shaft

Yaw shaft is made of fine steel and used to connect generator part and blades to the tower. Yaw shaft will be powered with a 24V motor and then integrated with a gear box. It is able to regulate the direction of the generator part.

Dogvane & Anemometer

They receive the signals of wind direction and wind speed respectively.
Dogvane reads the average value of the wind direction every 120 seconds. If the angle between dogvane and wind generator axis exceeds 10°, the 24V motor will drive the yaw shaft to deflect and follow the wind direction automatically.
Anemometer measures the real-time wind speed. If the wind keeps to be over 3m/s within 20 seconds, the automatic wind tracking program will start up to make the rotor blades parallel to the wind correctly; if the wind speed drops below 3m/s, the tracking program will turn to stand-by.

Off-grid Inverter & On-grid Inverter

Hummer off-grid inverter adopts SPWM (Sinusoidal Pulse Width Modulation) technology. It is able to convert DC with higher efficiency into AC with stable frequency and voltage and filter the noise as well. It is generally used in the off-grid power system.
Hummer on-grid inverter adopts MPPT (Maximum Power Point Tracking) technology and IGBT (Insulated Gate Bipolar Transistor). It is able to convert DC with a high capacity in power producing into a wider AC voltage output range. It is connected to the public grid and there is no need to connect with any power storage devices.

Off-grid Inverter

On-grid Inverter

Siemens Module PLC

Hummer PLC (Programmable Logic Controller) adopts Siemens controlling module. It is equipped with a touch-screen, which can alarm and adjust the abnormal running status of wind turbine automatically. Siemens module is highly reliable to our PLC, which can be testified by our worldwide customers. Thus, it is easy and efficient to control and operate our wind turbine via our PLC.

Rectifier/Dump Load Controller & Dump Load Box

The controller regulates the process in which the AC produced by wind turbine is converted into DC and then charges the battery bank with DC. It also controls the switching on and off of dump load to protect the system from the overload risk because of too much power.

Metal dump load box design radiates heat from internal resistance quickly via the air convection. Thus there is no need for an extra fan.

Rectifier/Dump load controller

Dump load box

Guyed Tower (500W-10kW)

Guyed tower section is assembled from several segments of high-strength steel tubes which are galvanized and spray painted. This kind of tower also have the features of low fabricating cost, convenient transportation and easy tear open outfit, etc. The tower is suitable for some remote area where crane is not available.

Free-standing Tower (500W-100kW)

Self-supporting tower adopts polygon taper structure and quality steel materials which are strong enough to resist heavy wind. The surface of the tower is processed with the hot-dip galvanizing and spray paint, thus it is able to protect the tower from corrosion and rust. The exterior of tower is concise and well-formed. In addition, the tower takes up small land occupation.

Hydraulic Tower System (1kW-100kW)

Thanks to the hydraulic pump system, hydraulic tower can be erected up and laid down automatically. Hydraulic tower is relatively easy and convenient to assemble and preserve. It will be your wise option especially for mountainous area, island and some remote areas where cranes are not accessible.

Contact Us

ADD: Room 302, E2 Building
Hua Yi Science Park, Tian Da Road
Hefei, Anhui, China
TEL for sales: +86-551-63441230
+86-551-63441231
FAX for sales: +86-551-63442991
Email: sales@chinahummer.cn
Website: www.chinahummer.cn