



QINGDAO GREEF NEW ENERGY EQUIPMENT CO.,LTD

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COMPANY INTRODUCTION:

Qingdao Greef New Energy Equipment Co., Ltd are global supplier which focus on wind and solar hybrid generator systems solution, Permanent Magnet generator, wind turbine blades, controller, invertor etc.

“GREEF”have its own engineer design team which is design products ourselves.

Moreover, we have successfully obtained CE approvals and supports from our customers, which boost our business day by day! We have very strong flexibility and competitive capabilities, especially in organizing goods sources all over China, solution design, quality control, transportation arrangement, and commodity inspection. With a perfect service system, we can assist our customers to save cost and time.

Believe in us, we can accompany you forever.



2014

Year

Since the start of the company in 2014, we have been passionate believers in our mission to provide cheaper, reliable electricity through the power of renewable energy. Your support and belief in what GREEF (GREENFUN) lives for, starting with our motto "Be Green, Be Great, Have Fun", has allowed us to rapidly innovate and become a world leader in distributed renewable energy.

5

Factories

In QINGDAO ,SUZHOU, DEZHOU ,NINGBO and TAI'AN of China mainland , “GREEF”own 5 top factories in the field to provide our customer quality products.

300

Staff

We employ over 300 staff around the world, representing a wide range of skills, among them electronic engineering, project management, process development, quality assurance, logistics and customer service. What unites us is the vision of a fully renewable future and the core company values of integrity and attention to detail.

9

Years

50% staff in our engineer team have 9 years experience in wind and solar generator field,can provide customer customzied new energy solution .

43

Countries

Since 2014, “GREEF”have export to more than 43 countries all over the world ,like Germany, United States, Italy, Canada,Poland, Spain, India, Britain, Poland, Mexico, Romania, Australia, Kazakhstan, Portugal, and other countries and regions.

24

Hours

“GREEF” team promise to provide our customer fast reponse with 24hours of your inquiry and other E-mail.

3-5

Years

“GREEF” provide 3-5 years warranty of our products .Pay more attention in aftersales.



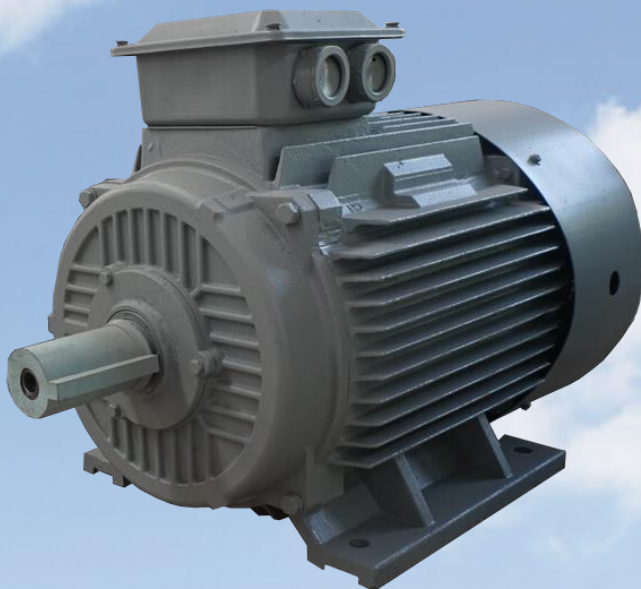
Permanent Magnet Generator

GREEF company supply modified kinds of Permanent Magnet Generator as follow:

1. Wind Power Permanent Magnet Generator
2. Water Power Permanent Magnet Generator
3. Vehicle Motors
4. Low speed high torque direct-drive motors
5. Direct-drive progressive cavity pump motors
6. Permanent Magnet motor for oil field pumping units
7. Rare earth magnet variable frequency speed motor
8. Brushless DC motor
9. Outer rotor motor
10. High efficient magnet generator

The advantage of our GDF:

1. Low speed Low rpm permanent magnet generator, no need speed increaser, low speed high output voltage.
2. High efficiency permanent magnet generator, brushless, no need Magnet, without spark, portection grade: IP44, waterproof, longlife time.
3. Small size, light weight, high energy density.
4. Simple structure, no excitation generator control box.
5. Generator run with high efficiency in all the rotate speed range.
6. Submerged Nd-Fe-B Permanent magnet, Suitable for Bumps, repeated start, reversing the operating requirements.
7. SKF Oil high speed Bearing, maitenance free, longlife time.
8. Design by order, voltage, rotate speed ,power etc, can change generator nacelle, can use diffirent aixs and output method.



Technical Data

GDF SERIES PMG QUOTATION SHEET

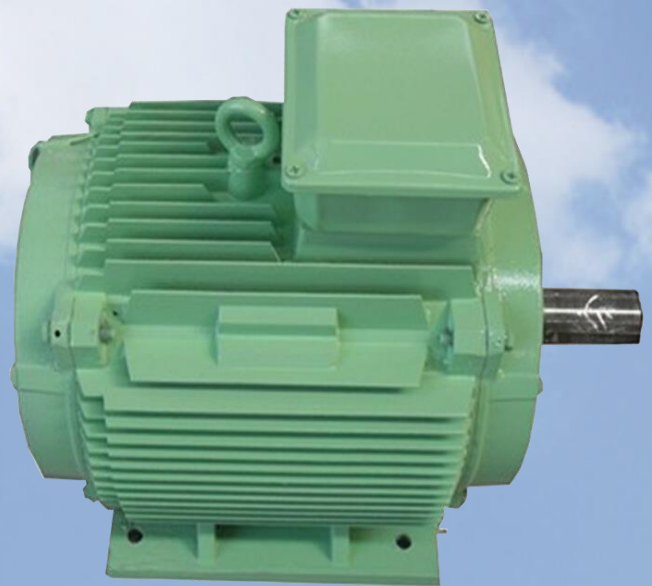
MODEL GDF-	20RPM	30RPM	60RPM	100RP M	150RP M	200RP M	250RP M	300RP M	350RP M	400RP M	450RP M	500RP M	600RP M	900RP M	Weight(kg)	50Hz RPM	60Hz RPM	POLES
90	0.05	0.06	0.13	0.18	0.2	0.25	0.35	0.4	0.45	0.55	0.6	0.8	1	1.2	33	375	450	16
100	0.06	0.1	0.15	0.26	0.4	0.45	0.6	0.8	1.15	1.3	1.35	1.4	1.7	2.2	36	300	360	20
112-1	0.08	0.12	0.25	0.35	0.5	0.6	0.8	1.1	1.35	1.5	1.6	2	2.3	2.6	42	300	360	20
112-2	0.1	0.12	0.28	0.4	0.6	0.7	1	1.5	1.65	1.8	2	2.2	2.8	3.2	48	300	360	20
132-1	0.11	0.15	0.3	0.6	1	1.5	2	2.4	2.8	3	3.2	3.5	4	4.5	58	273/375	327/450	22/16
132-2	0.13	0.2	0.4	0.7	1.1	1.6	2.3	3	3.2	3.5	3.7	4	4.5	5	64	273/375	327/450	22/16
132-3	0.18	0.3	0.6	0.8	1.3	1.7	2.5	3.2	3.6	4	4.3	4.6	5	6	73	273/375	327/450	22/16
160-1	0.2	0.35	0.8	1.5	2.5	3	3.6	4.5	5	5.5	6.2	7	8	9	128	273/375	327/450	22/16
160-2	0.3	0.5	1.2	2.5	4	5	6	7	7.5	8	8.5	9	10	12	136	273/375	327/450	22/16
180-1	0.3	0.6	1.3	3	4.5	6	7	8	9.5	11	13	15	18	20	162	250	300	24
180-2	0.5	0.8	2	3.5	6	7	9	11	12	13	17	20	22	25	186	250	300	24
200-1	0.7	1.2	2.5	4.5	7	9	11	12	15	20	25	30	33	36	230	250/333	300/400	24、18
200-2	1	1.5	3.5	5	9	12	13	15	18	25	30	35	38	40	260	250/333	300/400	24、18
225-1	1.1	2	4	8	10	13	15	17	21	26	33	40	45	50	290	214/273	257/327	28、22
225-2	1.2	3	6	9	13	17	19	22	25	30	38	45	43	50	332	214/273	257/327	28、22
250-1	1.8	3.5	7	11	16	20	22	25	30	35	42	50	53	55	410	187.5	225	32、24
250-1	2.5	4	8	12	18	22	25	35	40	45	50	60	65	75	440	187.5	225	32、24
280-1	3	5	10	15	20	26	33	40	50	55	63	80	90	100	680	187.5	225	32、24
280-2	4	6	12	20	26	33	42	50	60	70	80	90	100	120	750	187.5	225	32、24
315-1	4.5	7	15	30	55	63	67	75	82	90	97	105	140	170	1200	125/200	150/240	48、30
315-2	6	10	20	40	75	95	110	120	130	140	150	160	180	200	1360	125/200	150/240	48、30
355-1	7.2	11	22	45	80	100	130k	140	155	170	195	200	240	260	1680	125/200	150/240	48、
355-2	9	12	25	50	90	140	150	180	200	220	230	240	270	280	1760	125/200	150/240	48、
355-3	11	18	27	55	110	160	170	200	215	230	240	260	300	350	1850	125/200	150/240	48、
355-4	20	32	45	80	130	180	200	210	220	240	260	280	300	400	1920	125/200	150/240	48、
400	40	60	90	150	200	250	280	350	375	400	450	500	700	800	2800	125/200	150/240	48、16
450	50	75	150	220	300	360	430	500	560	630	720	800	1000	12000	4100	125/200	150/240	48、
500-1	60	90	180	280	400	480	550	630	700	780	840	900	1100	1400	5200	143/200	171/240	42、
500-2	70	100	200	320	500	580	650	750	830	900	950	1000	1200	1500	5800	143/200	171/240	42、
560	120	200	350	500	600	700	850	1000	1200	1500	1800	1900	2400	2600	7000	167	200	36
630	180	240	500	750	900	1300	1500	1700	2000	2200	2600	3200	4000	4800	9600	100	120	60
710	260	380	800	1200	1600	1800	2000	2400	2800	3200	3600	4000	4800	5600	12900	100	120	60
850	400	600	1500	2600	3500	4000									15T			
1000	500	1200	2400	3600	4500	5000									20T			

The GDF Generator Could be custmized

POWER KW

Model:GDF-100

Rated power	5kW
Rated rotate speed	200rpm
Rated voltage	400VAC
Start torque	3.5N.M
Rated torque	242N.M
Efficiency	>92%
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	22
Generatror type	Permanent Magnent AC
Number of phases	Three Phase
weight	128kg
Classification of degrees	IP54
Generatror shell material	Cast Iron
Shaft material	Steel



Model:GDF-160



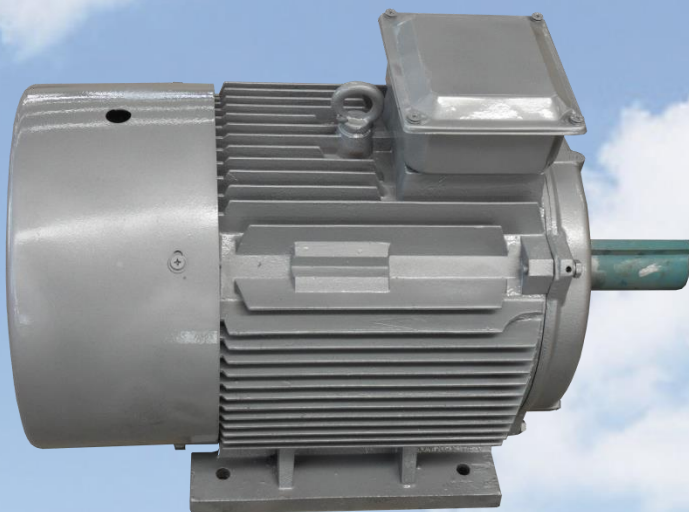
Rated power	10kW
Rated rotate speed	1500rpm
Rated voltage	400VAC
Start torque	1N.M
Rated torque	65N.M
Efficiency	>92%
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	22
Generatror type	Permanent Magnent AC
Number of phases	Three Phase
weight	128kg
Classification of degrees	IP54
Generatror shell material	Cast Iron
Shaft material	Steel

Model:GDF-200

Rated power	30kW
Rated rotate speed	750rpm
Rated voltage	400VAC
Start torque	5N.M
Rated torque	50Hz@250rpm
Effienciency	>94.3%
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	24
Generatrор type	Permanent Magnent AC
Number of phases	Three Phase
weight	260kg
Classification of degrees	IP54
Generatrор shell material	Cast Iron
Shaft material	Steel

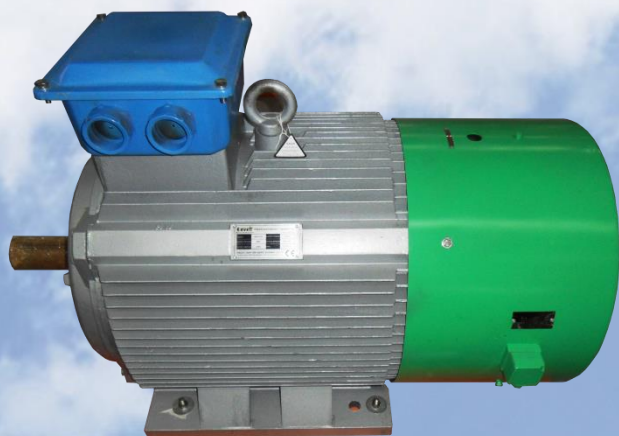


Model:GDF-250



Rated power	5kW
Rated rotate speed	200rpm
Rated voltage	400VAC
Start torque	3.5N.M
Rated torque	242N.M
Effienciency	>92%
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	22
Generatrор type	Permanent Magnent AC
Number of phases	Three Phase
weight	128kg
Classification of degrees	IP54
Generatrор shell material	Cast Iron
Shaft material	Steel

Model: GDF-315



Rated power	60kW
Rated rotate speed	250rpm
Rated voltage	480VAC
Start torque	2326N.M
Rated torque	50Hz@200rpm
Efficiency	>93.7%
Insulate Grade	Y
Insulating resistance	H
No of pole	100Mohm Min(500Vdc)
Generatrор type	64
Number of phases	Permanent Magnent AC
weight	Three Phase
Classification of degrees	1200kg
Generatrор shell material	IP54
Shaft material	Cast steel

Model: GDF-400

Rated power	700kW
Rated rotate speed	600rpm
Rated voltage	400VAC
Start torque	167N.M
Rated torque	11308N.M
Frequency @rpm	50Hz@200rpm
Efficiency	>93%
Wending Method	Y
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	48
Generatrор type	Permanent Magnent AC
Number of phases	Three Phase
Weight	1680kg
Classification of degrees	IP54



Model: GDF-630



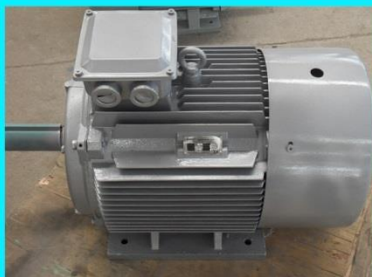
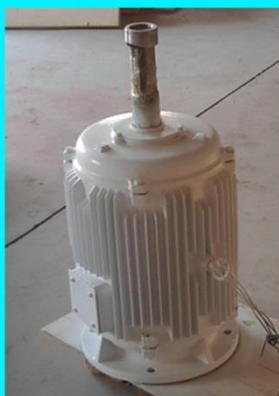
Rated power	1700kW
Rated rotate speed	300rpm
Rated voltage	480VAC
Start torque	811
Rated torque	54928
Frequency @rpm	50Hz@100rpm
Effienciency	>95.2%
Wending Method	Y
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	64
Generatrор type	Permanent Magnent AC
Number of phases	Three Phase
Weight	9600kg
Classification of degrees	IP54

Model: GDF-710

Rated power	2500kW
Rated rotate speed	300rpm
Rated voltage	480VAC
Start torque	1193N.M
Rated torque	80777N.M
Frequency @rpm	50Hz@100rpm
Effienciency	>95.3%
Wending Method	Y
Insulate Grade	H
Insulating resistance	100Mohm Min(500Vdc)
No of pole	64
Generatrор type	Permanent Magnent AC
Number of phases	Three Phase
Weight	12900kg
Classification of degrees	IP54



<http://greefenergy.en.alibaba.com>



The advantage of our permanent magnet generator

Low rated rotate speed, Low start wind speed, Low weight and small size, high efficiency.

(1) Torque Patent Technology: use newest "Precise Coil" technology. No hysteresis and gear notches effect make the start torque very low $<1\text{N.M}$

(2) Original Structure: use disc coreless motor to take place traditional motor makes it less volume and weight.

(3) Higher Utilization: use special coreless motor technology to eliminate the use bottlenecks of lower speed wind energy.

(4) Higher Reliability: special structure make it bigger ratio of power to volume, power to weight and have long life of 8 times longer than traditional motor.

(5) Gearless, direct drive, low RPM generator.

(6) High standard, quality components for use in harsh and extreme environments for wind turbines

(7) High efficiency and Low mechanical resistance energy loss

(8) Excellent heat dissipation due to the Aluminum alloy outer frame and special internal structure

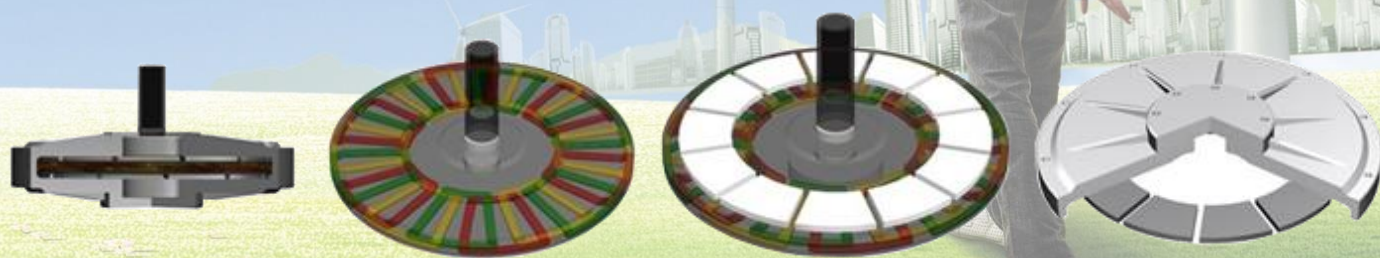
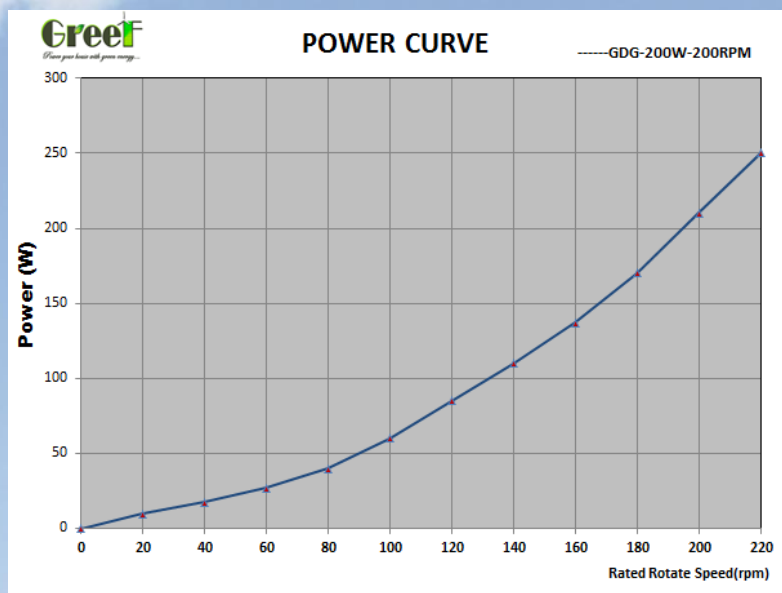
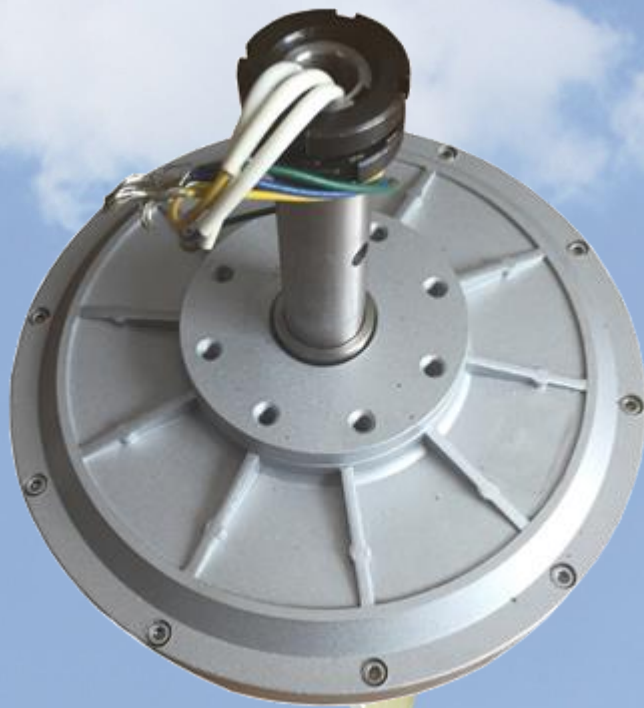
Pictures



Permanent Magnet Generator

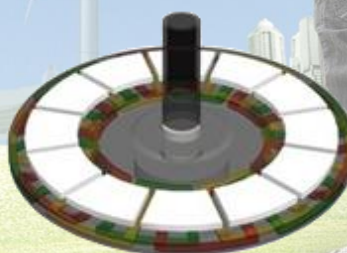
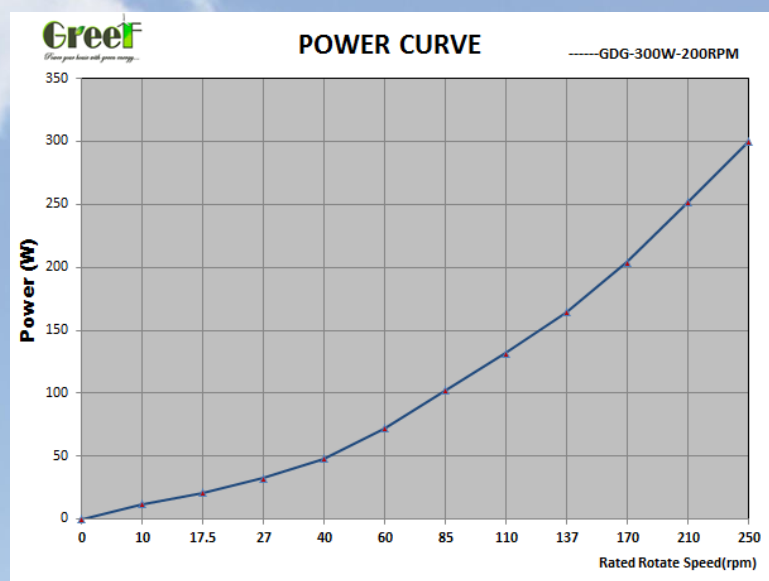
Model: GDG-200W

Rated Power	200W
Rated Rotor Speed	200RPM
Rated Voltage	12-240V
Efficiency	>85%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<0.05N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	10.5kg
Shaft Material	Stainless Steel



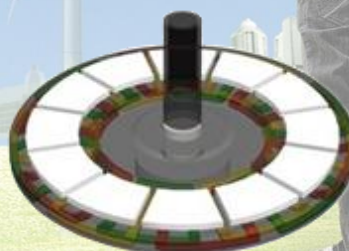
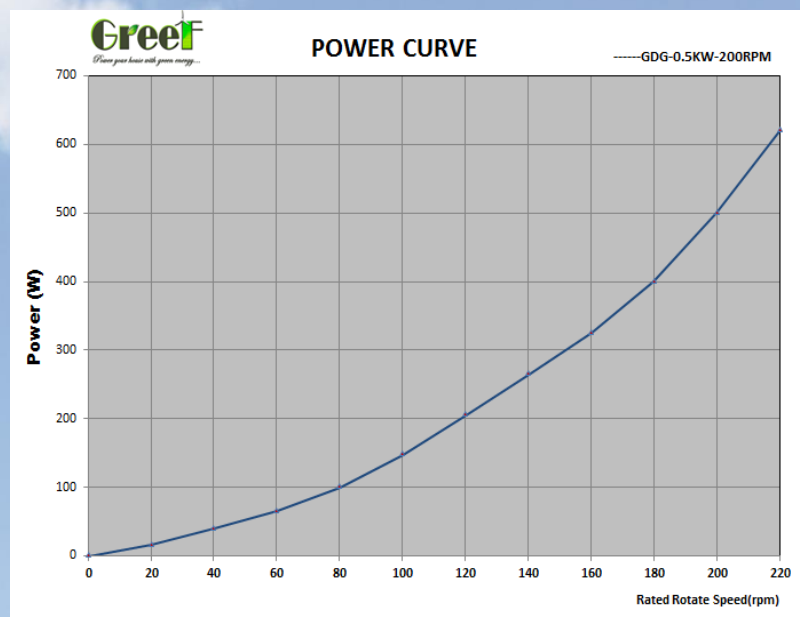
Model: GDG-300W

Rated Power	300W
Rated Rotor Speed	200RPM
Rated Voltage	12-240V
Efficiency	>85%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<0.1N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	13kg
Shaft Material	Stainless Steel



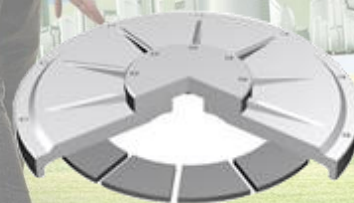
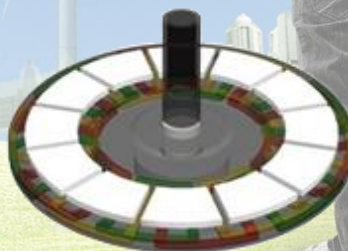
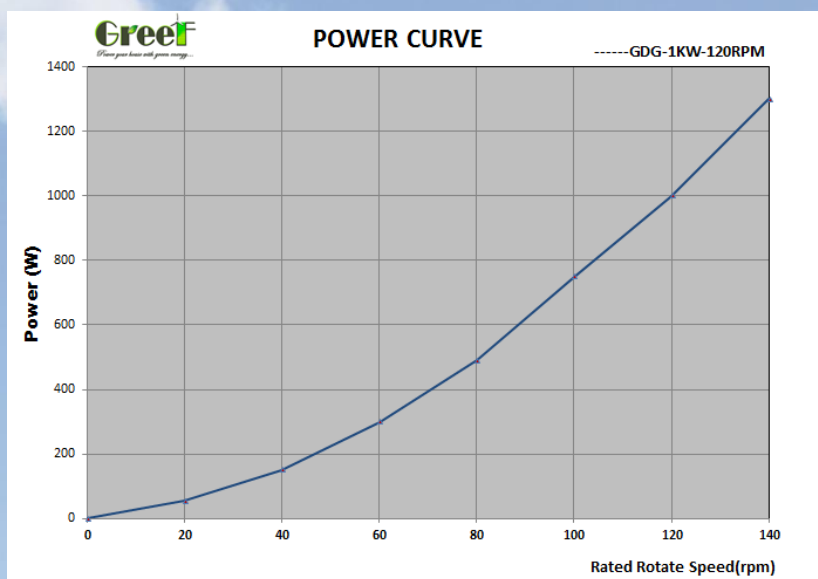
Model: GDG-500kW

Rated Power	500W
Rated Rotor Speed	120RPM
Rated Voltage	12-240V
Efficiency	>85%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<0.1N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	32kg
Shaft Material	Carbon Steel



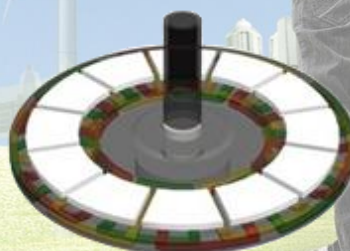
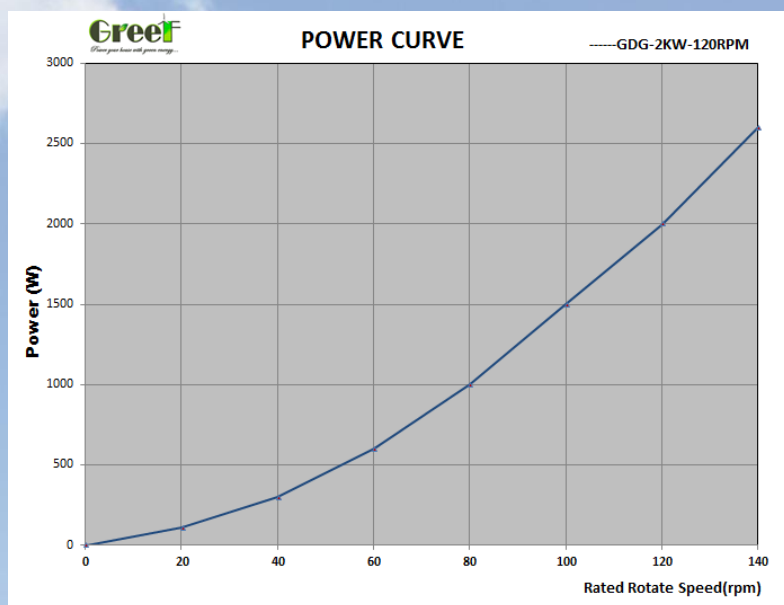
Model: GDG-1kW

Rated Power	1KW
Rated Rotor Speed	120RPM
Rated Voltage	12-240V
Efficiency	>85%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<0.3N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	48kg
Shaft Material	Carbon Steel



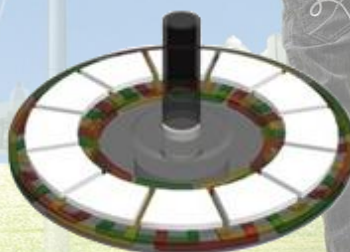
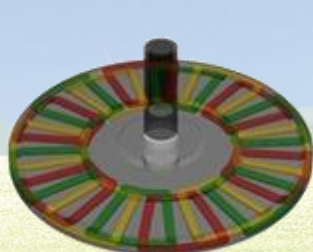
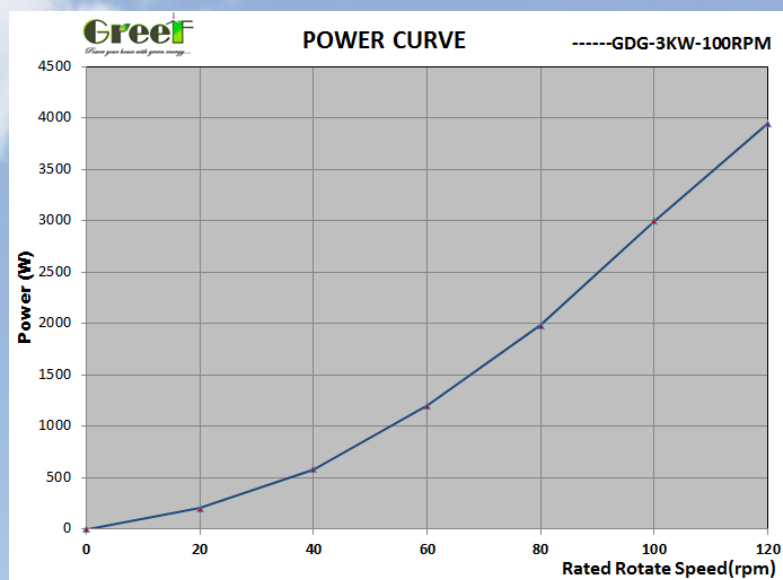
Model: GDG-2kW

Rated Power	2KW
Rated Rotor Speed	120RPM
Rated Voltage	12-240V
Efficiency	>85%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<0.5N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	75kg
Shaft Material	Carbon Steel



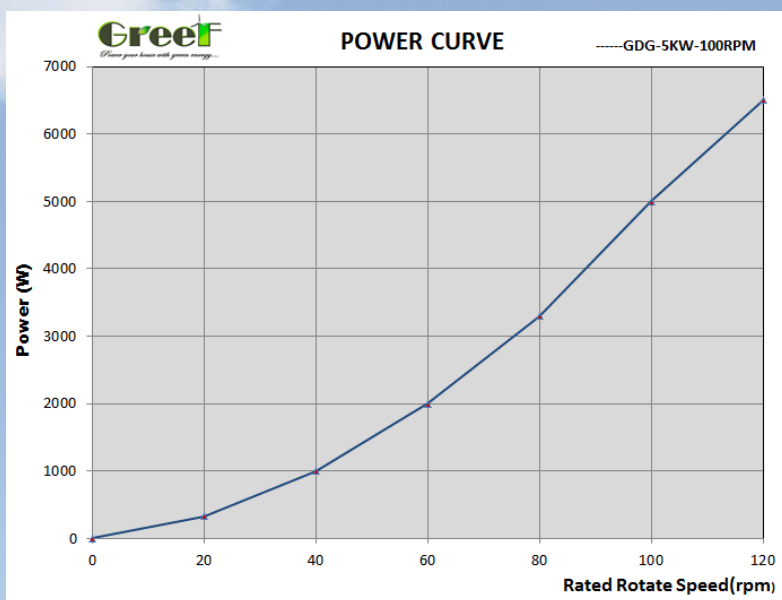
Model:GDG-3KW

Rated Power	3KW
Rated Rotor Speed	100RPM
Rated Voltage	48-380V
Efficiency	>85%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<1N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	110kg
Shaft Material	Carbon Steel



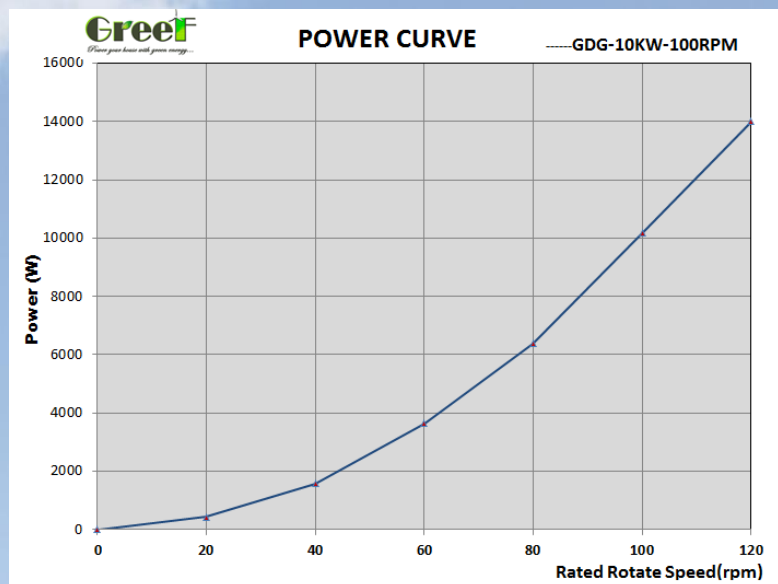
Model: GDG-5KW

Rated Power	5KW
Rated Rotor Speed	100RPM
Rated Voltage	48-380V
Efficiency	>88%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<0.5N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	125kg
Shaft Material	Carbon Steel



Model: GDG-10kW

Rated Power	10KW
Rated Rotor Speed	100RPM
Rated Voltage	48-400V
Efficiency	>88%
Wending Method	Y
Leakage Level	<5Ma
Start Torque	<1N/M
Phase Type	3 Phase
Sturcture	Out rotor
Stator	Coreless wire coil
Rotor	Rare Earth Permanent Magnet
Weight	245kg
Shaft Material	Carbon Steel



All-in-one Solar LED Light



The design of the all in one solar street light comes from the inspiration and power of the universe, combined the best energy saving parts---solar panel, led lamp and special battery. With the help of the controller and PIR sensor, it realizes the functions of high brightness with low energy, long lifespan and free maintenance. At the same time, it is very convenient to ship and install. It is one of the best patent products of our company.

Q: What is ALL-IN-ONE Solar LED Light?

A: LED light, Solar panels, controller, battery all in one box . No need connect any cable!



What is Working Principle?

Traditional solar street lights have almost the same working principle, they have lamp base, battery panel, storage battery, charge and discharge mode controller system.

But integrated solar street light put them together, and the storage battery has to be replaced by lithium battery, hence it is simple and light.



How to installation?

A: 1 spanner ,2 person, 5 mins You can put it on anywhere you want ,just make sure it have good shine sun .



Need connect any cable?

A: NO NEED .



How bright?

A: 1W LED=3W CFL=15W incandescent lamp
20WLED=60W CFL=300W incandescent lamp
50WLED=150WCFL=750W incandescent lamp



How many hours working?

A: eg. **20W LED** : >10Hours full power , and in saving mode it can working 20hours

How many hours for charge?

A: eg. **20W LED** : 7Hours with strong sun..

Control method?

A: **Light Control** : When dark the light turn on automatically.

Motion sensor Control :When people comes the light turn on ,gone turn off automatically.

Time Control :Setting the exactly time turn on and turn off the light automatically



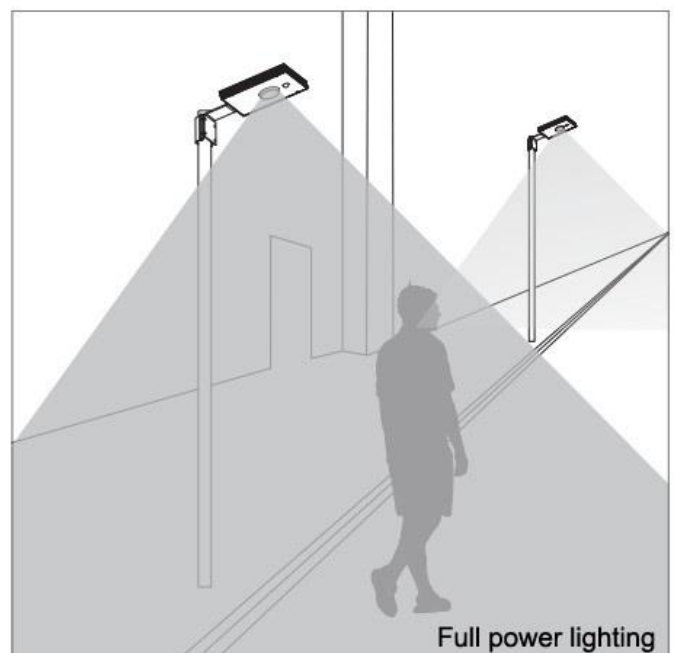
Waterproof & rustproof of the light?

A: Special waterproof design

Alumina Alloy is used for main structure in order to prevent dusty and corrosion

What is the viewing angle?

A: 120°



Does the cost much?

1. **Installation cost save** :All-in-one solar street light will save much installation.as it's installation very easy
2. **Delivery cost save:** Normally, it costs only 1/10 of traditional lamp. And we can delivery by DHL
3. **Battery replace cost save:** integrated solar street light has 5-year long life for having the global first lithium battery management control techniques. Compared with those normal battery need to be changed every two year, integrated solar street light will save much money during future after-sales service.
4. **Maintain cost save:** The battery needn't replacing or maintaining, when you replace after five years, you can take minutes to finish without any guidance, since it's special structure design. That is why we can't compare their cost price only, but pay more attention to composite cost (shipping cost, installation and debugging cost, after-sale service cost, maintain cost) except product cost.



What is the life time?

A: LED lifetime=50000 hours
Solar panels=20years
Battery =5years

What kinds of battery?

A: Lithium-based batteries

Products Pictures



SHTY-30W



SHTY-40W



SHTY-50W



SHTY-60W



Specifications

Model		SHTY-5W	SHTY-8W	SHTY-12W	SHTY-15W	SHTY-20W	SHTY-25W	SHTY-30W	SHTY-40W	SHTY-50W	SHTY-60W
LED Lamp (with sensor)	Max power	5W	8W	12W	15W	20W	25W	30W	40W	50W	60W
	Voltage	12V									
	Led chip brand	Epistar with high brightness					USA Bridgelux with high brightness				
	lumen (LM)	500-550lm	800-880lm	1200-1320lm	1500-1650lm	2000-2200lm	2500-2750lm	3000-3300lm	4000-4400lm	5000-5500lm	6000-6600lm
	Life time	50000hours									
	Viewing Angle	120°									
Solar panel	Max power	18V10W (MONO)	18V15W (MONO)	18V18W (MONO)	18V25W (MONO)	18V50W (MONO)	18V50W (MONO)	18V60W (MONO)	18V60W (MONO)	18V70W (MONO)	18V80W (MONO)
	Life time	25 years									
Battery	Type	lithium battery									
	Model	12.8V /4AH	12.8V /6AH	12.8V /6AH	12.8V /12AH	12.8V /18AH	12.8V /21AH	12.8V /24AH	12.8V /27AH	12.8V /30AH	12.8V /33AH
	Life time	5 years									
Charge time	By sun	6hours	6hours	5-6 hours	7 hours	7 hours	7 hours	6 hours	6 hours	6 hours	7 hours
Discharge time	Full power	12hours	12hours	>20 hours	> 20 hours	>10 hours	>10 hours	> 10 hours	> 12 hours	>15 hours	>15 hours
	Saving mode	24hours	24hours	24hours	24hours	> 20 hours	> 20 hours	> 20 hours	>24 hours	>30 hours	>30 hours
Working Temperature	range(°C)	-30℃~+70℃									
Colour temperature	range(k)	6000k									
Mounting height	range (m)	2.5-3m	3-4m	3-4m	4-5m	5-6m	5-6m	6-7m	6-7m	7-9m	7-9m
Space between	range (m)	7-9m	8-10m	8-10m	10-15m	18-20m	18-20m	18-20m	18-20m	25-30m	25-30m
Lamps material of main		Aluminium alloy									
Certificate		CE / ROHS / IP65									
Warranty period		2years									

What is the package size?

Model	Packing & Weight						Packs Containers	
	Dimension	G.W	packing size	Corton size	Q'ty/ctn	GW .for corton	20' GP	40' GP
SHTY-5W	480*280*55mm	4.5kg	neutral	560*570*410mm	4sets/ctn	22kg	1080pcs	2250pcs
SHTY-8W	515*320*52mm	5.8kg	neutral	560*570*410mm	4sets/ctn	27kg	900pcs	1920pcs
SHTY-12W	540*320*55mm	5.8kg	neutral	560*570*410mm	4sets/ctn	27kg	900pcs	1920pcs
SHTY-15W	710*350*55mm	8.0 kg	700*420*130mm	750*570*470mm	4sets/ctn	38kg	639sets	1290sets
SHTY-20W	920*330*140mm	12.5kg	950*410*210 mm	950*410*210 mm	1sets/ctn	15 kg	375sets	792sets
SHTY-25W	1170*330*140mm	16kg	1210*410*210 mm	1210*410*210 mm	1sets/ctn	18.5kg	300sets	600sets
SHTY-30W	1170*330*140mm	16.5kg	1210*410*210 mm	1210*410*210 mm	1sets/ctn	19kg	330sets	660sets
SHTY-40W	1170*330*140mm	19kg	1210*410*210 mm	1210*410*210 mm	1sets/ctn	20.5kg	300 sets	660sets
SHTY-50W	1200*380*159mm	20kg	1230*460*230 mm	1230*460*230 mm	1sets/ctn	24.4kg	279 sets	619sets
SHTY-60W	1200*380*160mm	21kg	1230*460*230 mm	1230*460*230 mm	1sets/ctn	24.5kg	280 sets	620sets

Packing Pictures



Production Pictures



Projects pictures?



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Alibaba 2YR Gold Supplier



Greef

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QINGDAO GREEF NEW ENERGY EQUIPMENT CO.,LTD



Horizontal Axis Wind Turbine

Model:GH-300W



Blades Rotor Diameter	1.6 m (5.25ft.)
Quantity & Material	3 Pcs / FRP
Rated Power	300W
Max Power	400W
Rated Rotate Speed	400rpm
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	8m/s (17.92mph)
Working Wind Speed	3-20m/s (6.72-44.8 mph)
MAX.Design Wind Speed	35m/s (78.4mph)
Protection Method	Autofurling +PWM control
Output Voltage	24V
Top Weight	25kg
Generator Type /Material	PMG AC Direct Drive
Swept Area	4.9 m ²

Model:GH-600W



Blades Rotor Diameter	2.5 m (8.2 ft.)
BladesQuantity & Material	3 Pcs / FRP
Rated Power	600W
MaxPower	750W
Rated Rotate Speed	400rpm
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	8m/s (17.92mph)
Working Wind Speed	3-20m/s (6.72-44.8 mph)
MAX.DesignWind Speed	35m/s (78.4mph)
ProtectionMethod	Autofurling +PWM control
Output Voltage	24V
Top Weight	32kg
GeneratorType/Material	PMG AC Direct Drive
Swept Area	4.9 m ²

Model:GH-1KW



Blades Rotor Diameter	2.8 m (9.18 ft.)
Blades Quantity & Material	3 Pcs / FRP
Rated Power	1000W
Max Power	1500W
Rated Rotate Speed	400rpm
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	8m/s (17.92mph)
Working Wind Speed	3-20m/s (6.72-44.8 mph)
MAX.Design Wind Speed	35m/s (78.4mph)
Protection Method	Autofurling +PWM control
Output Voltage	48V
Top Weight	55kg
Generator Type /Material	PMG AC Direct Drive
Swept Area	6.15 m ²

Model:GH-2KW



Blades Rotor Diameter	3.2m (10.496 ft.)
Blades Quantity & Material	3 Pcs / FRP
Rated Power	2000W
Max Power	3200W
Rated Rotate Speed	350rpm
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
MAX.Design Wind Speed	40m/s (89.6mph)
Protection Method	Autofurling +PWM control
Output Voltage	48V
Top Weight	65kg
Generator Type /Material	PMG AC Direct Drive
Swept Area	8.04 m ²



Model:GH-3KW



BladesRotorDiameter	4 m (13.12 ft.)
BladesQuantity&Material	3Pcs/FRP
Rated Power	3000W
MaxPower	4000W
RatedRotateSpeed	320 rpm
StartWindSpeed	3 m/s (6.72 mph)
RatedWindSpeed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
MAX.DesignWindSpeed	50m/s (112mph)
ProtectionMethod	Autofurling +PWM control
Output Voltage	220V
Top Weight	240kg
GeneratorType/Material	PMG AC Direct Drive
Swept Area	12.56 m ²

Model:GH-5KW



BladesRotorDiameter	5 m (16.4 ft.)
BladesQuantity&Material	3 Pcs / FRP
Rated Power	5000W
MaxPower	7000W
RatedRotateSpeed	260(r/min)
StartWindSpeed	3 m/s (6.72 mph)
RatedWindSpeed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
MAX.DesignWindSpeed	50m/s (112mph)
ProtectionMethod	Autofurling +PWM control
Output Voltage	48V
Top Weight	410 kg
GeneratorType/Material	PMG AC Direct Drive
Swept Area	19.625 m ²

Model:GH-10KW



BladesRotorDiameter	8 m (26.24 ft.)
BladesQuantity&Material	3PC/FRP
Rated Power	10000W
MaxPower	12000W
RatedRotateSpeed	160 (r/min)
StartupWindSpeed	3 m/s (6.72 mph)
RatedWindSpeed	11m/s (24.64mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
MAX.DesignWindSpeed	50m/s (112mph)
ProtectionMethod	Autofurling +PWM control
Output Voltage	240V
Top Weight	520 kg
GeneratorType/Material	PMG AC Direct Drive
Swept Area	50.24m ²

Model:GH-15KW



BladesRotorDiameter	9 m (29.52 ft.)
BladesQuantity&Material	3 Pcs / FRP
Rated Power	15000W
MaXPower	16000W
RatedRotateSpeed	160 (r/min)
StartWindSpeed	3 m/s (6.72 mph)
RatedWindSpeed	11m/s (24.64mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
MAX.DesignWindSpeed	50m/s (112mph)
ProtectionMethod	Autofurling +PWM control
Output Voltage	360V
Top Weight	700 kg
GeneratorType/Material	PMG AC Direct Drive
Swept Area	63.58 m ²

Model:GH-20KW

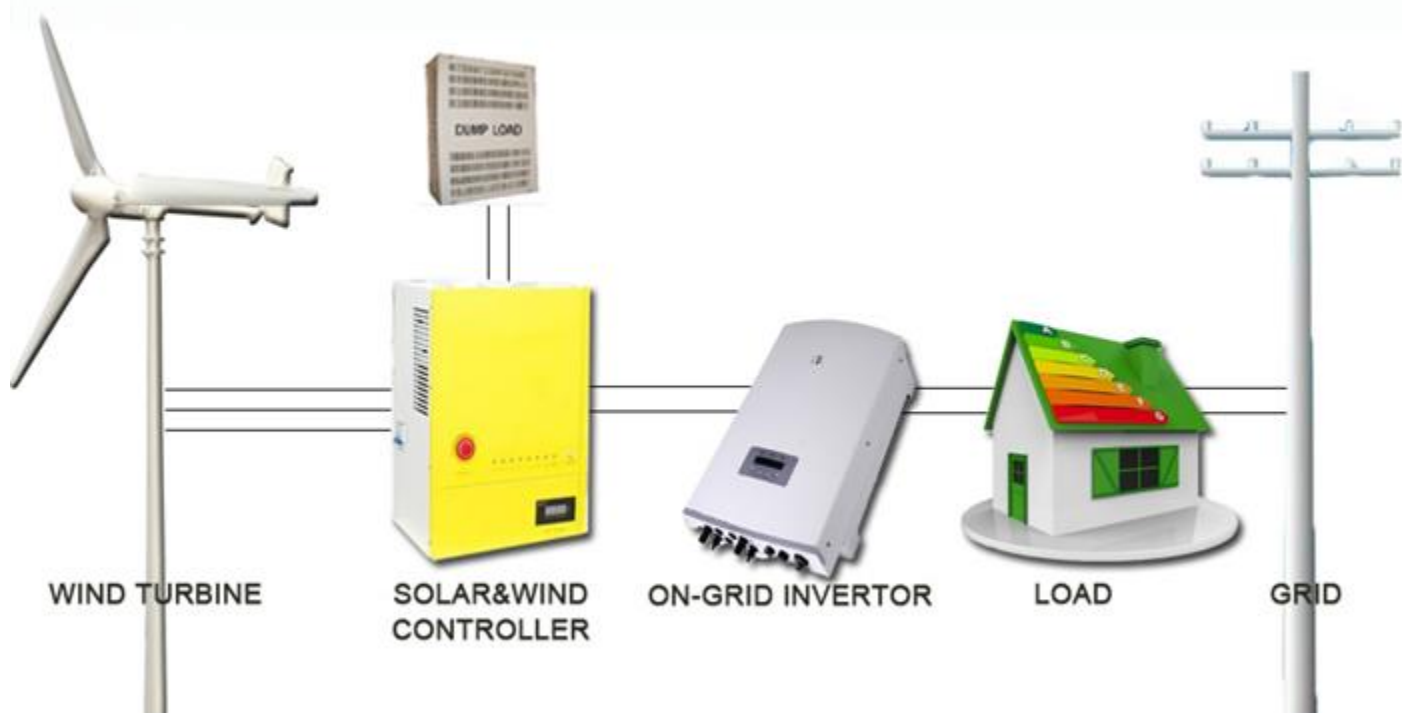


BladesRotorDiameter	10 m (32.8 ft.)
BladesQuantity&Material	3 Pcs / FRP
Rated Power	20000W
MaxPower	25000W
RatedRotateSpeed	160 (r/min)
StartWindSpeed	3 m/s (6.72 mph)
RatedWindSpeed	12m/s (26.88mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
MAX.DesignWindSpeed	50m/s (112mph)
ProtectionMethod	Autofurling +PWM control
Output Voltage	360V
Top Weight	900 kg
GeneratorType/Material	PMG AC Direct Drive
Swept Area	78.5 m ²

Off-Grid Wind Power Generator System



ON-Grid Wind Power Generator System





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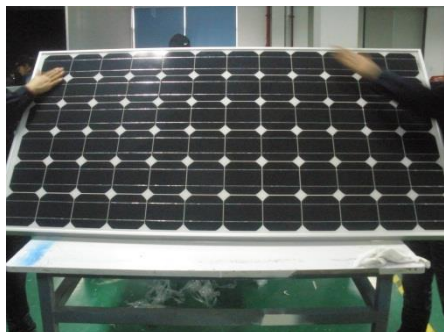
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Solar Wind Hybrid System

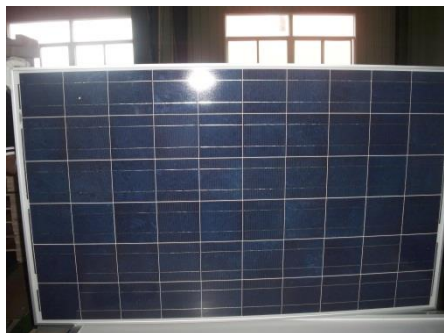
Monocrystalline Solar Panels



Model	Size(mm)	Rated Power(w)	Weight(kg)
G-SP10-12	351*291*17	10	1.8
G-SP20-12	363*529*25	20	2.5
G-SP30-12	500*440*30	30	3.0
G-SP40-12	377*670*35	40	3.5
G-SP50-12	550*670*35	50	4.5
G-SP60-12	603*670*35	60	5.3
G-SP70-12	758*670*35	70	6.0
G-SP80-12	836*670*35	80	6.5
G-SP90-12	935*670*35	90	7.5
G-SP100-12	1061*670*35	100	7.8
G-SP110-12	1161*670*35	110	8.6
G-SP120-12	1277*670*35	120	9.8
G-SP130-24	1361*670*35	130	10.5
G-SP140-24	1480*670*35	140	11.8
G-SP150-24	1610*670*35	150	12.5
G-SP160-24	1172*983*35	160	14.2
G-SP170-24	1232*983*35	170	15.3
G-SP180-24	1304*983*35	180	16.5
G-SP190-24	1382*983*35	190	17.5
G-SP200-24	1448*983*50	200	18.8
G-SP210-24	1547*983*50	210	20.0
G-SP220-24	1622*983*50	220	20.5
G-SP230-24	1653*983*50	230	21
G-SP240-24	1750*983*50	250	21.5
G-SP250-24	1950*992*50	260	22



Polysilicon solar panels



Model	Size(mm)	Rated Power(w)	Weight(kg)
G-SP10-12	351*291*17	10	1.8
G-SP20-12	363*529*25	20	2.5
G-SP30-12	377*670*35	30	3.5
G-SP40-12	550*670*35	40	4.5
G-SP50-12	603*670*35	50	5.3
G-SP60-12	758*670*35	60	6.0
G-SP70-12	836*670*35	70	6.5
G-SP80-12	935*670*35	80	7.5
G-SP90-12	1061*670*35	90	7.8
G-SP100-12	1161*670*35	100	8.6
G-SP110-12	1277*670*35	110	9.8
G-SP120-12	1361*670*35	120	10.5
G-SP130-24	1480*670*35	130	11.8
G-SP140-24	1610*670*35	140	12.5
G-SP150-24	1172*983*35	150	14.2
G-SP160-24	1232*983*35	160	15.3
G-SP170-24	1304*983*35	170	16.5
G-SP180-24	1382*983*35	180	17.5
G-SP190-24	1448*983*50	190	18.8
G-SP200-24	1547*983*50	200	20.0
G-SP210-24	1622*983*50	210	20.5
G-SP220-24	1653*983*50	220	21
G-SP230-24	1750*983*50	230	21.5
G-SP250-24	1950*992*50	250	22



Solar Wind Power System

Model:GHY-1KW



Wind Power Rated Power	600W
Max Power	750W
Blades Rotor Diameter	2.5m (8.2 ft.)
Blade Quantity &Material	3 Pcs / FRP
Rated Rotate Speed	500 (r/min)
Start Torque	0.34(N.M)
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	8m/s (17.92mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Total PV power	400W
Each Panels Power	200W
Solar Panels Quantity	2pcs
Pv Type	Mono
Efficiency	12.45%

Model: GHY-2K



Wind Power Rated Power	1000W
Max Power	1500W
Blades Rotor Diameter	2.8m (9.18 ft.)
Blade Quantity &Material	3 Pcs / FRP
Rated Rotate Speed	400 (r/min)
Start Torque	0.4(N.M)
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Total PV power	1kW
Each Panels Power	250W
Solar Panels Quantity	4pcs
Pv Type	Mono
Efficiency	12.15%T



Model:GHY-3KW



Wind Power Rated Power	2000W
Max Power	3200W
Blades Rotor Diameter	3.2m (10.50ft)
Blade Quantity &Material	3 Pcs / FRP
Rated Rotate Speed	350 (r/min)
Start Torque	0.8(N.M)
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Total PV power	1kW
Each Panels Power	250W
Solar Panels Quantity	4pcs
Pv Type	Mono
Efficiency	12.15%

Model:GHY-5KW



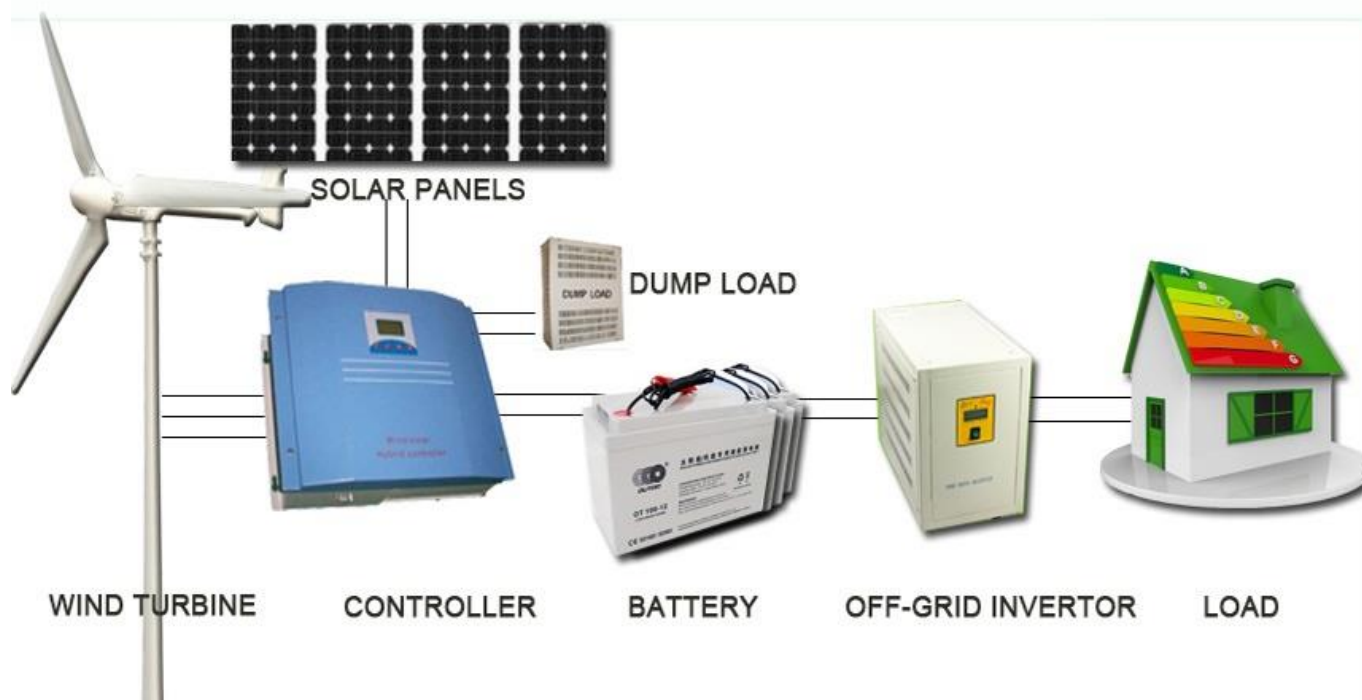
Wind Power Rated Power	3000W
Max Power	4000W
Blades Rotor Diameter	4m(13.12)
Blade Quantity &Material	3 Pcs / FRP
Rated Rotate Speed	320 (r/min)
Start Torque	2.5(N.M)
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Total PV power	2kW
Each Panels Power	200W
Solar Panels Quantity	10pcs
Pv Type	Mono
Efficiency	12.45%

Model:GHY-10KW

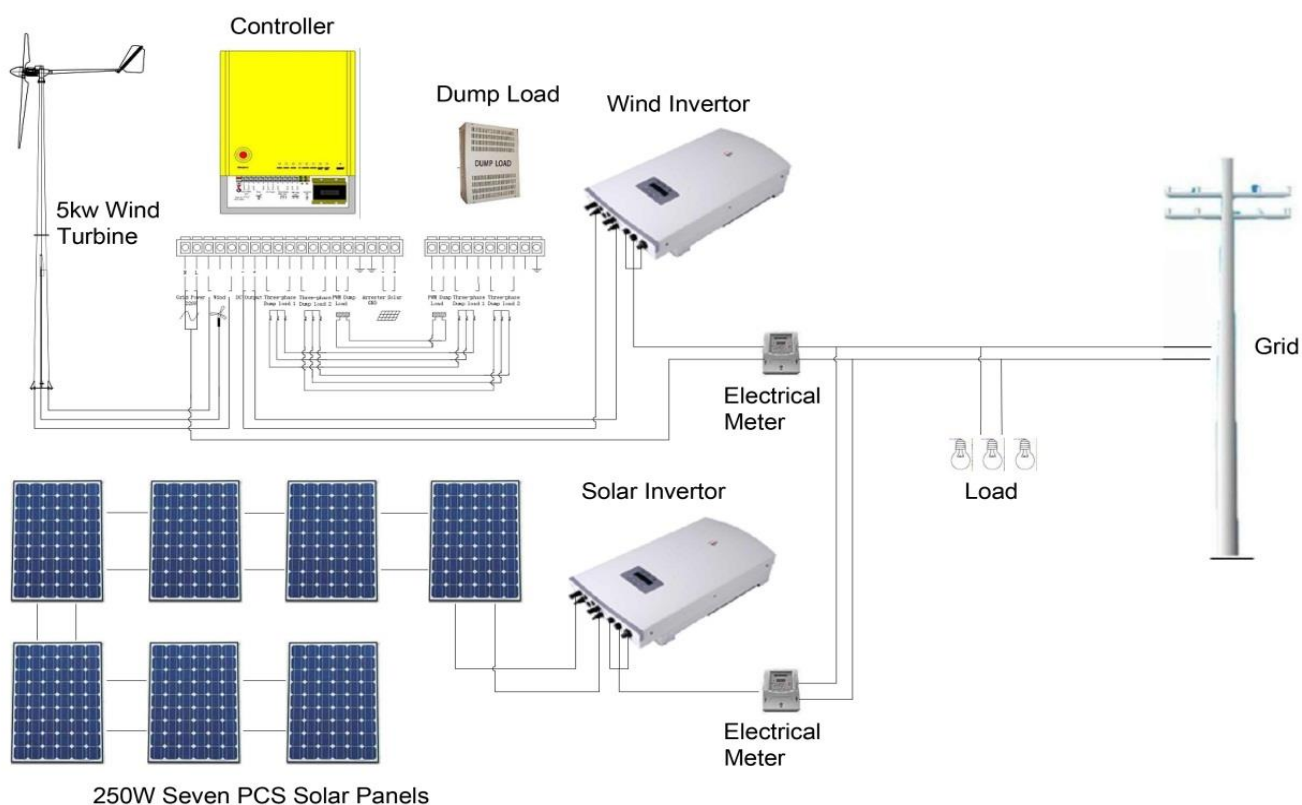


Wind Power Rated Power	5000W
Max Power	7000W
Blades Rotor Diameter	5m (16.4 ft.)
Blade Quantity &Material	3 Pcs / FRP
Rated Rotate Speed	260 (r/min)
Start Torque	4.5(N.M)
Start Wind Speed	3 m/s (6.72 mph)
Rated Wind Speed	10m/s (22.4mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Total PV power	5kW
Each Panels Power	200W
Solar Panels Quantity	10pcs
Pv Type	Mono
Efficiency	12.45%

Off-Grid Solar Wind Power Hybrid System



ON-Grid Solar Wind Power Hybrid System





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QINGDAO GREEF NEW ENERGY EQUIPMENT CO.,LTD



Vertical Axis Wind Turbine

Model:GV-300W



Rated Power	300W
Max Power	400W
Rated Rotor Speed	200 rpm
Start Torque	<0.1 N.M
Blades Height	1.3m(4.264 ft.)
Blades Rotor Diameter	1.2m(3.936 ft.)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	1m/s (2.24mph)
Rated Wind Speed	10m/s(22.4mph)
Working Wind Speed	1-25m/s (2.24-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	12-24V
Generator Type	Three-phase AC out rotor disc
Generator Weight	13kg/50kg
Swept Area	1.56 m ²

Model:GV-500W



Rated Power	500W
Max Power	650W
Rated Rotor Speed	200rpm
Start Torque	<0.1N.M
Blades Height	1.5m(4.92ft.)
Blades Rotor Diameter	1.3m(4.264ft.)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	(2.24mph)
Rated Wind Speed	10m/s
Working Wind Speed	1-25m/s (2.24-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	12-24V
Generator Type	Three-phase AC out rotor disc
Generator Weight	20kg/64kg
Swept Area	2.4 m ²

Model:GC-1KW



Rated Power	1000W
Max Power	1500W
Rated Rotor Speed	150rpm
Start Torque	<0.3N.M
Blades Height	2.6m(8.53 ft.)
Blades Rotor Diameter	1.4m(4.59 ft.)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	2.8m/s (6.272mph)
Rated Wind Speed	11m/s(24.64mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	48-400V
Generator Type	Three-phase AC out rotor disc
Mill Weight	175kg
Swept Area	3.64 m ²

Model:GC-2KW



Rated Power	2000W
Max Power	2500W
Rated Rotor Speed	150rpm
Start Torque	<0.3N.M
Blades Height	3.5m(11.5 ft.)
Blades Rotor Diameter	2.3m(7.5 ft.)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	2.8m/s (6.272mph)
Rated Wind Speed	11m/s(24.64mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	48-400V
Generator Type	Three-phase AC out rotor disc
Mill Weight	285kg
Swept Area	8.05 m ²

Model:GC-3KW



Rated Power	3000W
Max Power	4000W
Rated Rotor Speed	100rpm
Start Torque	<1N.M
Blades Height	3.7m(12.14 ft.)
Blades Rotor Diameter	2.5m(8.2 ft.)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	2.8m/s (6.272mph)
Rated Wind Speed	12m/s(26.88mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	120-400V
Generator Type	Three-phase AC out rotor disc
Mill Weight	355kg
Swept Area	9.25 m ²

Model:GS-5KW



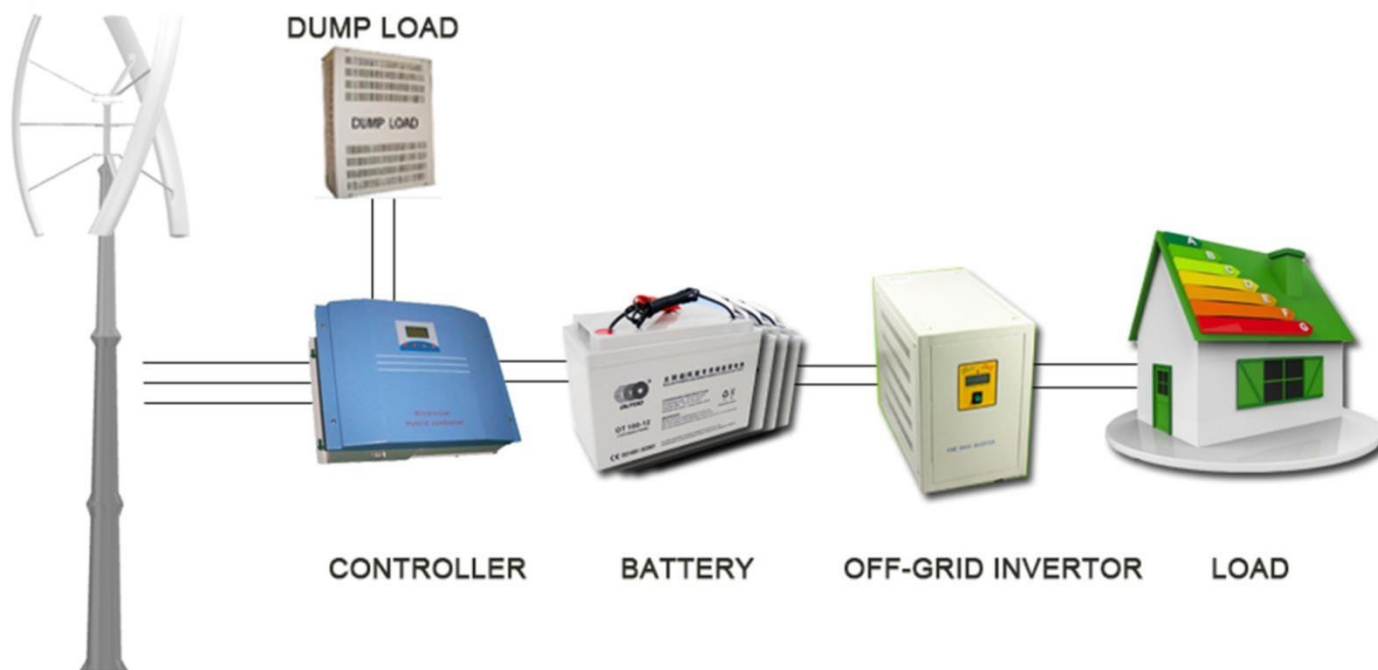
Rated Power	5000W
Max Power	6000W
Rated Rotor Speed	100rpm
Start Torque	<1N.M
Blades Height	5.2m(17.056ft)
Blades Rotor Diameter	4.05m(13.284ft)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	2.8m/s (6.272mph)
Rated Wind Speed	11m/s(24.64mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	120-500V
Generator Type	Three-phase AC out rotor disc
Mill Weight	530kg
Swept Area	21.06 m ²

Model:GC-10KW

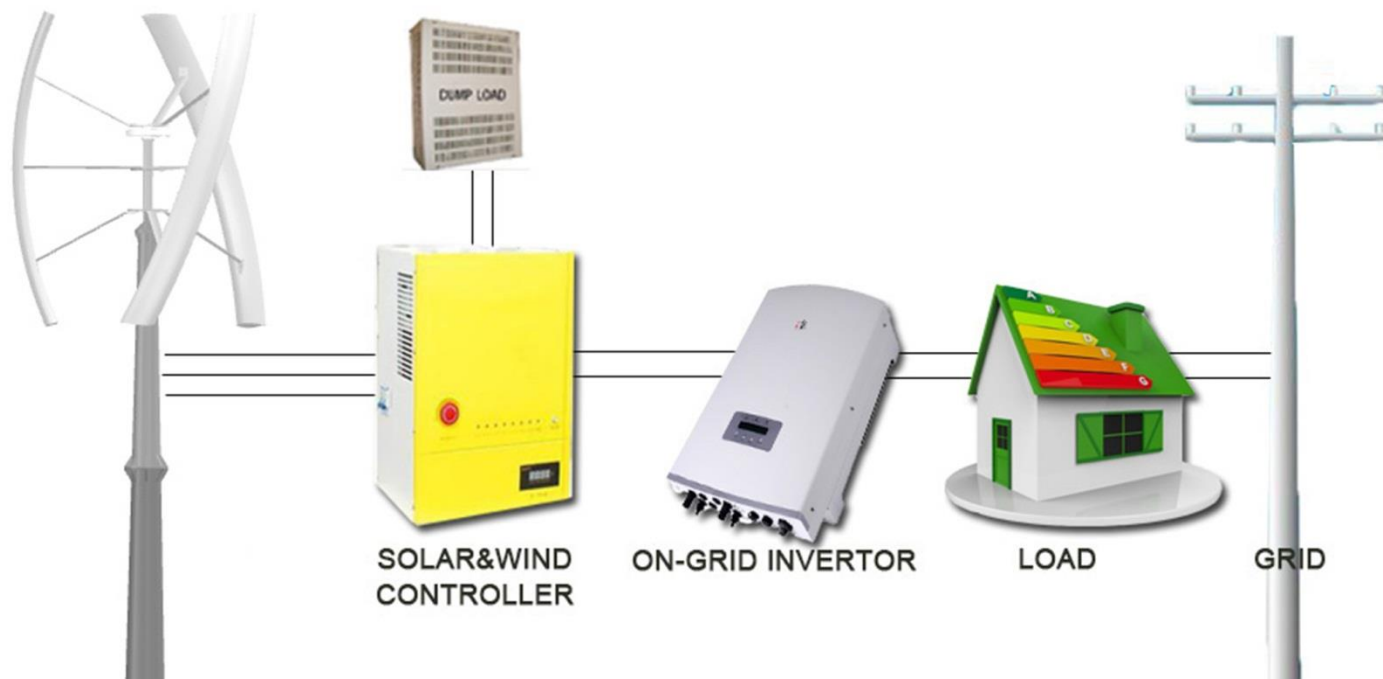


Rated Power	10000W
Max Power	11000W
Rated Rotor Speed	100rpm
Start Torque	<1N.M
Blades Height	6m(19.68ft)
Blades Rotor Diameter	3m(9.84ft)
Blades Material&Quantitiy	FRP /3PCS
Start Wind Speed	2.8m/s (6.272mph)
Rated Wind Speed	13m/s(29.12mph)
Working Wind Speed	3-25m/s (6.72-56 mph)
Safety Wind Speed	50m/s(112mph)
Option Voltage	120-500V
Generator Type	Three-phase AC out rotor disc
Mill Weight	780kg
Swept Area	18 m ²

OFF-Grid Wind Power Generator System



ON-Grid Wind Power Generator System





Active 2nd Gold Supplier



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Wind Turbine Blades

Horizontal Axis Wind Turbine Blades



Model	HB-1.2	HB-1.2	HB-1.7	HB-1.34
Rated Power	300W	500W	500W	1KW
Single Blade Length	870mm	1200mm	1170mm	1340mm
Rotor Diameter	1800mm	2500mm	2500mm	2800mm
Chord Thickness	140mm	160mm	170mm	170mm
Blade Tip Chord wide	40mm	40mm	55mm	40mm
Blade Tip Chord Thickness	9mm	9mm	10mm	9mm
Single Weight	0.7kg	2kg	2.3kg	2.6kg
Start Wind Speed	2.5m/s	3m/s	3m/s	3m/s
Rated Wind Speed	9m/s	10m/s	10m/s	10m/s
Rated Rotor Speed	500rpm	300rpm	300rpm	300rpm
Working Wind Speed	2.5-35m/s	3-35m/s	3-35m/s	3-35m/s
Safety Wind Speed	50m/s	40m/s	40m/s	40m/s
Root Type	Plate	Plate	Plate	Plate
Material	FRP	FRP	FRP	FRP



Model	HB-1.35	HB-1.55	HB-1.6	HB-1.9
Rated Power	1KW	1KW	2KW	3KW
Single Blade Length	1350mm	1550mm	1600mm	1900mm
Rotor Diameter	2800mm	3200mm	3500mm	4000mm
Chord Thickness	200mm	240mm	230mm	250mm
Blade Tip Chord wide	55mm	50mm	55mm	80mm
Blade Tip Chord Thickness	10mm	13mm	15mm	15mm
Single Weight	2.6kg	3.5kg	3.6kg	6.1kg
Start Wind Speed	3m/s	3m/s	3m/s	3.5m/s
Rated Wind Speed	10m/s	10m/s	10m/s	11m/s
Rated Rotor Speed	300rpm	300rpm	300rpm	220rpm
Working Wind Speed	3-35m/s	3-35m/s	3-35m/s	3-35m/s
Safety Wind Speed	40m/s	40m/s	40m/s	40m/s
Root Type	Plate	Plate	Plate	Plate
Material	FRP	FRP	FRP	FRP





Model	HB-2.28	HB-2.31	HB-2.49	HB-2.6-S
Rated Power	3KW	3KW	5KW	5KWStalled
Single Blade Length	2280mm	2310mm	2490mm	2600mm
Rotor Diameter	4500mm	4500mm	5000mm	5500mm
Chord Thickness	315mm	315mm	330mm	300mm
Blade Tip Chord wide	160mm	160mm	65mm	100mm
Blade Tip Chord Thickness	22mm	22mm	13mm	22mm
Single Weight	16kg	13kg	13kg	7.5kg
Start Wind Speed	3.5m/s	3m/s	3m/s	3m/s
Rated Wind Speed	11m/s	11m/s	11m/s	14m/s
Rated Rotor Speed	230rpm	230rpm	220rpm	250rpm
Working Wind Speed	3.5-30m/s	3.5-30m/s	4-25m/s	4-30m/s
Safety Wind Speed	40m/s	40m/s	40m/s	50m/s
Root Type	Plate	Plate	Plate	Plate
Material	FRP	FRP	FRP	FRP





Model	HB-3.1-S	HB-3.2	HB-3.5	HB-3.8-F
Rated Power	5KWStalled	7KW	10KW	10KW
Single Blade Length	3100mm	3200mm	3500mm	3800mm
Rotor Diameter	6500mm	7000mm	8000mm	8500mm
Chord Thickness	310mm	450mm	400mm	400mm
Blade Tip Chord wide	100mm	215mm	130mm	120mm
Blade Tip Chord Thickness	17mm	20mm	20mm	20mm
Single Weight	10.2kg	34kg	32kg	35kg
Start Wind Speed	3m/s	3m/s	3m/s	3m/s
Rated Wind Speed	13m/s	12m/s	10m/s	10m/s
Rated Rotor Speed	180rpm	220rpm	200rpm	180rpm
Working Wind Speed	3-25m/s	4-30m/s	3-30m/s	3-30m/s
Safety Wind Speed	50m/s	50m/s	50m/s	50m/s
Root Type	Plate	Plate	Plate	Plate
Material	FRP	FRP	FRP	FRP





Model	HB-3.8-P	HB-3.6	HB-4.5	HB-4.795
Rated Power	10KW	10KW	15KW	20KW
Single Blade Length	3800mm	3600mm	4500mm	4795mm
Rotor Diameter	8500mm	8000mm	9500mm	10000mm
Chord Thickness	400mm	520mm	500mm	542mm
Blade Tip Chord wide	120mm	160mm	150mm	170mm
Blade Tip Chord Thickness	20mm	20mm	20mm	30mm
Single Weight	36kg	46kg	66kg	82kg
Start Wind Speed	3m/s	3.5m/s	3m/s	3m/s
Rated Wind Speed	11m/s	12m/s	10m/s	11m/s
Rated Rotor Speed	180rpm	220rpm	180rpm	160rpm
Working Wind Speed	4-30m/s	4-25m/s	3-20m/s	3-20m/s
Safety Wind Speed	50m/s	50m/s	50m/s	50m/s
Root Type	Plate	Plate	Plate	Plate
Material	FRP	FRP	FRP	FRP





Model	HB-5.885	HB-7	HB-8.17	HB-9.065	HB-10.5
Rated Power	30KW	30KW	50KW	80KW	100KW
Single Blade Length	5885mm	7000mm	8170mm	9065mm	10500mm
Rotor Diameter	12000mm	14000mm	17000mm	19000mm	22000mm
Chord Thickness	830mm	830mm	1150mm	1025mm	1035mm
Blade Tip Chord wide	240mm	240mm	450mm	280mm	300mm
Blade Tip Chord Thickness	40mm	40mm	70mm	55mm	50mm
Single Weight	150kg	165kg	240kg	260kg	280kg
Start Wind Speed	2.5m/s	2.5m/s	3m/s	2.5m/s	2.5m/s
Rated Wind Speed	10m/s	11m/s	10m/s	11m/s	11m/s
Rated Rotor Speed	90rpm	90rpm	60rpm	60rpm	60rpm
Working Wind Speed	3-25m/s	3-25m/s	3-20m/s	3-20m/s	3-25m/s
Safety Wind Speed	50m/s	50m/s	50m/s	50m/s	50m/s
Root Type	Plate	Plate	Plate	Plate	Plate
Material	FRP	FRP	FRP	FRP	FRP