



QIANGSHENG MAGNETS CO., LTD

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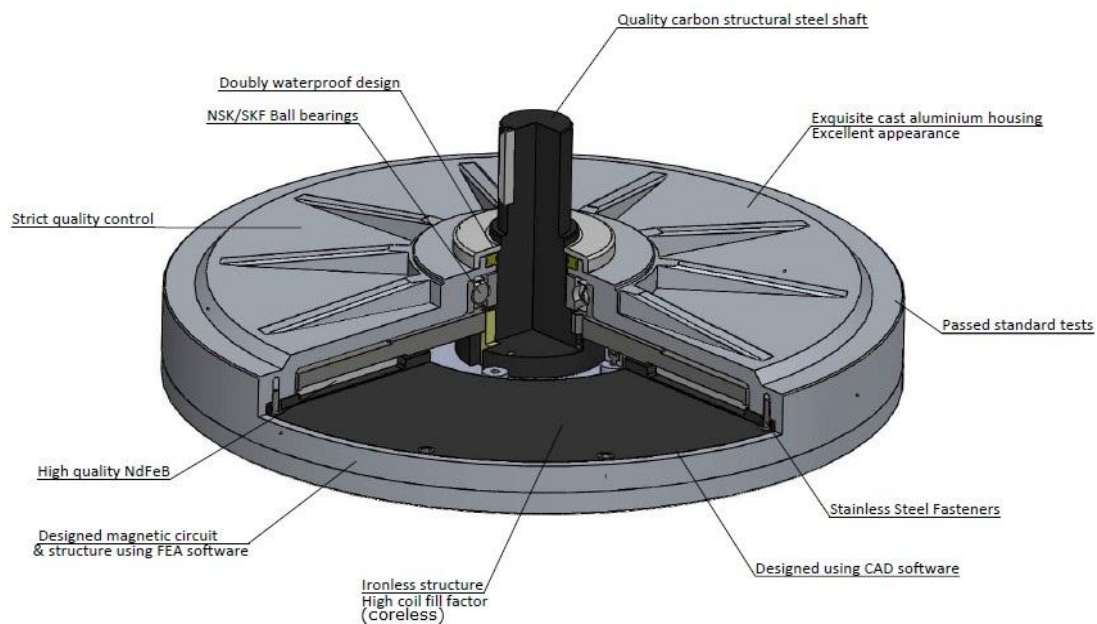
AFPMG for Small Wind Turbines & Hydro Power

We manufacture a series of new energy high-efficient, disc-shaped, inner (outer) rotor, three-phase, **Axial Flux Permanent Magnet Generator (AFPMG)** with a coreless (ironless) stator.

AFPMG ensures unsurpassed performance that will be highly appreciated by direct-drive small wind turbine (SWT) and Hydro Power manufacturers.

AFPMG provide advantages in terms of size and appearance. The mechanical structure of an **AFPMG** is simple, and the winding concept with a stator structure gives the generator a good performance and high efficiency.

Constructions and Materials





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Advantageous Features

- **High efficiency at low speed**

No mechanical drive losses, no rotor copper losses due to the permanent magnet excitation and no stator eddy current losses in the ironless (coreless) stator

The efficiency of **AFPMG**, depending on the model, is up to 90%.

- **Small dimension and weight**

AFPMG is uniquely lightweight and compact, construction is simple. The generators use much less metal in their construction, while also being highly durable and having a long life.

The generator's small weight and dimensions make it possible to reduce the size and price of the whole wind turbines.

The high specific capacity (output capacity per unit weight) significantly outperforms those from competing producers. This means that with similar dimensions and weight

- **Very small maintenance costs**

AFPMG is direct drive, no gearbox, oil-free system, low temperature rise

The highest energy efficiency at low speeds in the industry means that the generators can support any type of wind turbine with the widest range of wind speed.

The use of air-cooling reduces maintenance costs and also significantly strengthens the autonomy of power units

- **Very low starting torque**

AFPMG have no cogging torque and torque ripple, so the starting torque is very low, for direct-drive small wind turbine (SWT), the starting wind speed is less 1m/s.

- **Superior reliability**

Very low noise, less vibration, no mechanical belt, gear or lubrication unit, long life

- **Environmentally friendly**

The 100% environmentally clean technology and materials used in production during its long service life and the future recycling are absolutely harmless for the environment.

Main Applications

- Small wind generators(SWT)
- Small electrical generators driven by gasoline or diesel engines,
- Electric vehicle drive machines, as motor and generator.
- Hydro Power

Application of **AFPMG** offers an alternative solution in the sphere of electrical generators or electrical machines in general. Their disc-shaped construction and advantageous electromechanical characteristics represent the main features in alternative electrical energy production and in high efficient electric drive systems.



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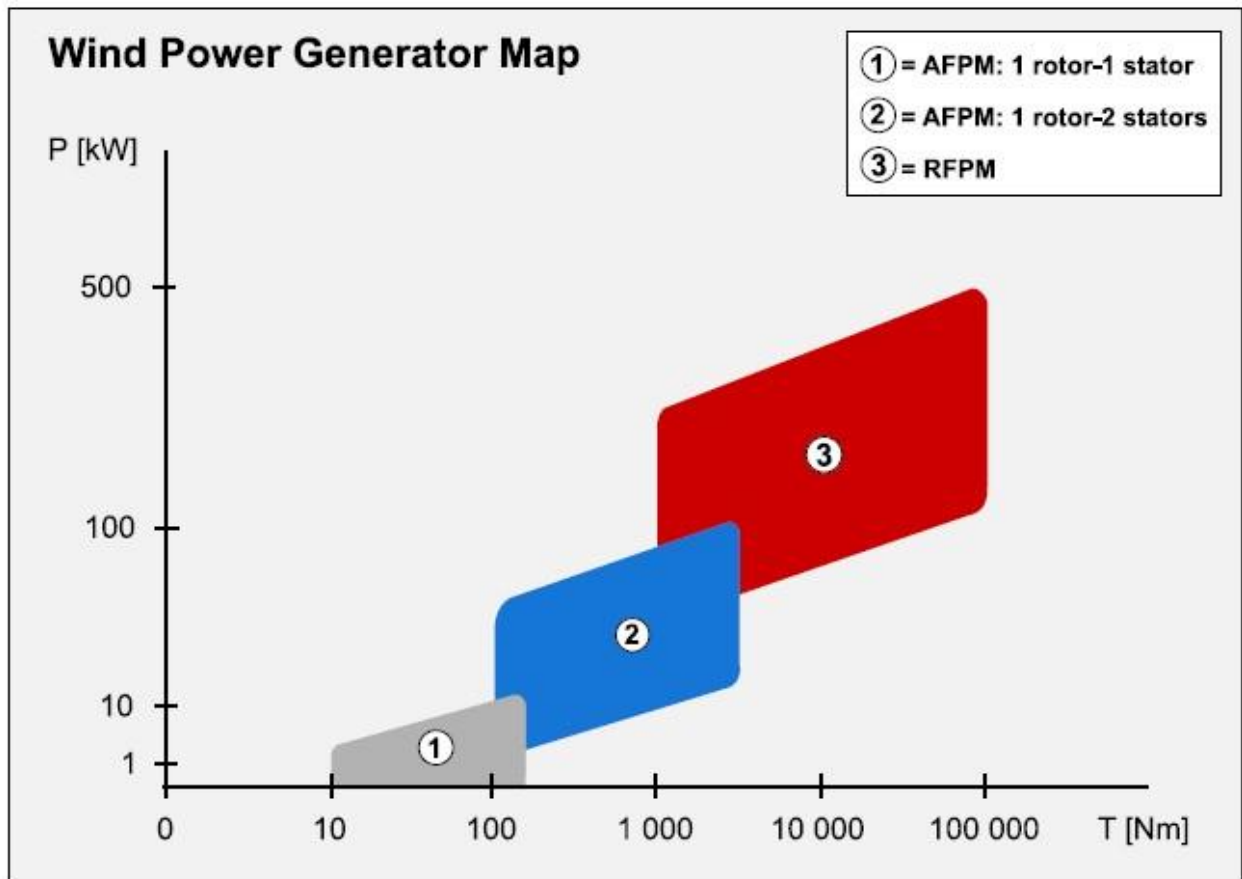
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Operating Range of Permanent Magnet Generator (PMG)

Construction and technical performance make Permanent Magnet Generators (PMG) is a perfect choice for small wind turbine (SWT) applications.

Operating range of PMG covers the needs of small wind turbine (SWT). For 1-5KW wind turbines, can use a single rotor-single stator of **AFPMG**, for 5KW-50KW turbines, can use **AFPMG** with a construction of single rotor-double stators,

The power rating above 50KW are covered by Radial Flux Permanent magnet Generator (RFPMG).



| Catalog of AFPMG Outer-Rotor | | | | | |
|---------------------------------|-------------------|----------------------|----------------------|-----------------------|--------------|
| Modell | Rated Power kW | Rated Speed U/min | Rated Voltage V | Starting Torque Nm | Weight kg |
| AFMPG-770 | 15 | 260 | 380 AC | < 0,5 | 165 |
| | 10 | 180 | 380 AC | | |
| | 7,5 | 150 | 220/380 AC | | |
| | 5 | 100 | 96/240 AC | | |
| AFMPG-700 | 10 | 250 | 380 AC | < 0,5 | 135 |
| | 7,5 | 200 | 380 AC | | |
| | 5 | 150 | 220/380 AC | | |
| | 4 | 100 | 96/240 AC | | |
| | 3 | 100 | 220/380 AC | | |
| AFMPG-550 | 4 | 200 | 220/380 AC | < 0,5 | 80 |
| | 3 | 180 | 220/380 AC | | |
| | 2 | 150 | 112 DC/220/380 AC | | |
| | 1,5 | 100 | 112 DC/220/380 AC | | |
| | 1 | 100 | 56/112 DC/220/380 AC | | |
| AFMPG-510 | 3 | 200 | 112 DC/220/380 AC | < 0,3 | 65 |
| | 2 | 150 | 112 DC/220/380 AC | | |
| | 1 | 90 | 56/112 DC/220 AC | | |
| AFMPG-450 | 2 | 180 | 112 DC/220/380 AC | < 0,3 | 48 |
| | 1,5 | 150 | 220/380 AC | | |
| | 1 | 130 | 56/112 DC/220 AC | | |
| AFMPG-380 | 2 | 350 | 112 DC/220/380 AC | < 0,3 | 32 |
| | 1 | 180 | 56/112 DC/220 AC | | |
| | 0,5 | 130 | 56/112 DC | | |
| AFMPG-320 | 1 | 350 | 56/112 DC/220 AC | < 0,3 | 20 |
| | 0,5 | 200 | 56/112 DC | | |
| | 0,3 | 150 | 28/56 DC | | |
| | 0,2 | 100 | 28/56 DC | | |
| AFMPG-260 | 0,5 | 350 | 28/56 DC | < 0,1 | 11 |
| | 0,3 | 300 | 28 DC | | |
| | 0,2 | 200 | 28/56 DC | | |
| | 0,1 | 130 | 14/28 DC | | |
| AFMPG-220 | 0,2 | 350 | 14/28 DC | < 0,1 | 8,5 |
| | 0,1 | 200 | 14/28 DC | | |
| AFMPG-200 | 0,1 | 350 | 14/28 DC | < 0,1 | 5,8 |
| | 0,05 | 200 | 14 DC | | |
| AFMPG-150 | 0,3 | 850 | 14/28 DC | < 0,1 | 3,8 |
| | 0,15 | 500 | 14/28 DC | | |
| | 0,05 | 250 | 14 DC | | |

Options

Rated Power: 0,1 kW – 15 kW

Rated Speed: 100 rpm – 1200 rpm

Rated Voltage: 14VDC – 400VAC

Outer Diameter: 110mm – 770mm

We can customize products according to customer requirements
 We can do OEM (Original equipment manufacturer) for customers

| Catalog of AFPMG Inner-Rotor | | | | | |
|---------------------------------|-------------------|----------------------|--------------------|-----------------------|--------------|
| Modell | Rated Power kW | Rated Speed rpm | Rated Voltage V | Starting Torque Nm | Weight kg |
| AFMPG-710 | 10 | 250 | 380 AC | < 0,5 | 145 |
| | 7,5 | 200 | 380 AC | | |
| | 5 | 150 | 220/380 AC | | |
| | 4 | 100 | 96/240 AC | | |
| AFMPG-560 | 3 | 100 | 220/380 AC | < 0,5 | 135 |
| | 15 | 400 | 300 AC | | |
| | 10 | 250 | 380 AC | | |
| | 7,5 | 200 | 220/380 AC | | |
| | 5 | 180 | 220/380 AC | | |
| | 4 | 200 | 220/380 AC | | 90 |
| | 3 | 180 | 220/380 AC | | |
| | 2 | 130 | 112 DC/220/380 AC | | |
| | 1,5 | 100 | 112 DC/220/380 AC | | |
| 1 | 100 | 56/112 DC/220/380 AC | | | |
| AFMPG-520 | 3 | 200 | 112 DC/220/380 AC | < 0,5 | 70 |
| | 2 | 150 | 112 DC/220/380 AC | | |
| | 1 | 90 | 56/112 DC/220 AC | | |
| AFMPG-460 | 2 | 180 | 112 DC/220/380 AC | < 0,3 | 52 |
| | 1,5 | 150 | 220/380 AC | | |
| | 1 | 130 | 56/112 DC/220 AC | | |
| AFMPG-380 | 2 | 350 | 112 DC/220/380 AC | < 0,3 | 34 |
| | 1 | 180 | 56/112 DC/220 AC | | |
| | 0,5 | 130 | 56/112 DC | | |
| AFMPG-330 | 1 | 350 | 56/112 DC/220 AC | < 0,3 | 22 |
| | 0,5 | 200 | 56/112 DC | | |
| | 0,3 | 150 | 28/56 DC | | |
| | 0,2 | 100 | 28/56 DC | | |
| AFMPG-270 | 0,5 | 350 | 28/56 DC | < 0,1 | 11 |
| | 0,3 | 300 | 28 DC | | |
| | 0,2 | 200 | 28/56 DC | | |
| | 0,1 | 130 | 14/28 DC | | |
| AFMPG-230 | 0,2 | 350 | 14/28 DC | < 0,1 | 8,5 |
| | 0,1 | 200 | 14/28 DC | | |
| AFMPG-210 | 0,1 | 350 | 14/28 DC | < 0,1 | 6 |
| | 0,05 | 200 | 14 DC | | |
| AFMPG-165 | 0,3 | 850 | 14/28 DC | < 0,1 | 4 |
| | 0,15 | 500 | 14/28 DC | | |
| | 0,05 | 250 | 14 DC | | |

Options

Rated Power: 0,1 kW – 15 kW

Rated Speed: 100 rpm – 1200 rpm

Rated Voltage: 14VDC – 400VAC

Outer Diameter: 110mm – 770mm

We can customize products according to customer requirements
 We can do OEM (Original equipment manufacturer) for customers



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Rated voltage: 14VDC-400VAC

Generator outer diameter: 110mm-770mm

We can customize products according to customer requirements

We can do OEM (Original equipment manufacturer) for customers

Checklist Category

1. Dimension and tolerances
2. Output power, voltage and RPM
3. Insulation resistance examination
4. Starting torque
5. Output wire (Red, white, black, green/earth)

Operating Instructions

1. Working condition: under an altitude of 2,500 meters, -30 ° C to +50 ° C
2. Before installation, gently turning the shaft or housing to confirm rotation flexibility, no abnormal sound.
3. **AFPMG** output is three-phase, three-wire output, before installation, use 500MΩ Megger to check the insulation resistance between the output wire and case, should not be less than 5 MΩ
4. If **AFPMG** is inner rotor generator, in the installation process, should ensure that the locking screw in place, it is very important

Warranty: 2-5 years

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