

V-1kW Owner's Manual

Revised version: Version 1.0






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Important safety instructions:

Read these instructions in their entirety before assembling, installing or operating your wind generator, and you will see the follow icons:

 : IMPORTANT	Indicates instruction or advice that is critical for correct assembly or operation. Damage to equipment may result if not heeded.
 : TIP	Indicates instruction or advice that may simplify or ease task or operation
 : WARNING	Indicates risk of severe injury or death or possible severe damage to equipment proceed with caution and follow instructions.

- 1) **SAVE THESE INSTRUCTIONS.** This manual contains important instructions that must be followed during assembly, installation and maintenance.
- 2) Read, understand and respect all warnings.
- 3) Do not install Aeolos generator on a windy day.
- 4) If unusual noise or operation is experienced, turn off machine and contact authorized service personnel.
- 5) During assembly and installation properly torque all fasteners.
- 6) Properly complete the Warranty Registration Card.
- 7) The generator must be installed in accordance with these manual and local and national building codes. Failure to comply with these manual and local codes may affect and possibly void your warranty.
- 8) Rotating blades are a serious mechanical hazard. So when working no one can come into contacting with the blades.
- 9) Observe wire size and fuse recommendations listed in the Wiring Section of this manual.

Section I: Aeolos-V 5-Year Limited Warranty

1.1 Hardware Warranty

Aeolos wind energy technical corporation (Aeolos) will repair or replace free of charge any part or parts of the Aeolos Wind Turbine determined by to be defective in materials and/or workmanship under normal authorized use consistent with product instructions for a period of five years from the date the original purchaser (“Customer”) receives the Wind Turbine (“Start Date”). This warranty extends only to the original purchaser. The Customer’s sole and exclusive remedy and the entire liability of Aeolos, its suppliers and affiliates under the warranty is, at Aeolos option, either

To replace the Wind Turbine with new or reconditioned Wind Turbine;

To calibrate the reported problem;

To refund the purchase price of the Wind Turbine.

Repaired or replaced products are warranted for the remainder of the original warranty period.

1.2 Restrictions

Problems with the Wind Turbine Products can be due to improper use, improper maintenance, non-Aeolos additions or modifications or other problems not due to defects in Aeolos’s workmanship or materials. No warranty will apply if the Wind Turbine

has been altered or modified except by Aeolos;

has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Aeolos;

has been exposed to winds exceeding 120 mph (54 m/s)

has been subjected to abnormal physical, thermal or electrical stress, misuse, negligence, or accident.

If Aeolos’s repair facility determines that the problem with the Wind Turbine is not due to a defect in Aeolos’s workmanship or materials, then the party requesting warranty service will be responsible for the costs of all necessary repairs and expenses incurred by Aeolos.

1.3 Warranty Claims & Return Procedures

In order to be eligible for service under this warranty, the Customer must submit a service request for Wind Turbine covered by this warranty within the warranty period by contacting

Aeolos in writing or via telephone and obtaining a Return Authorization (“RA”) number. This RA must be obtained before returning any product under this warranty. Notification must include a description of the alleged defect, the manner in which the Wind Turbine was used, the serial number, and the original purchase date in addition to the name, address, and telephone number of the party requesting warranty service. Within 3 business days of the date of notification, Aeolos will provide the Customer with an RA number and the location to which the Customer must return the defective Wind Turbine. Any Wind Turbine requiring warranty shall be transported at the expense and risk of the party requiring warranty service, including but not limited to proper packaging of the Product. The Customer must return the entire Wind Turbine kit within 30 days after issuance of the RA number. Aeolos will be under no obligation to accept any returned Wind Turbine that does not have a valid RA number. Customer’s failure to return the Wind Turbine within 30 days of its receipt of an RA number may result in cancellation of the RA. All parts that Aeolos replaces shall become Aeolos’s property on the date Aeolos ships the repaired Wind Turbine or part back to the Customer. Aeolos will use all reasonable efforts within five days of receipt of the defective Wind Turbine to repair or replace such Wind Turbine. If a warranty claim is invalid for any reason, the Customer will be charged at Aeolos’s then-current rates for services performed and will be charged for all necessary repairs and expense incurred by Aeolos.

1.4 Disclaimer

Except for the expressed warranty set forth above, Aeolos disclaims all other expressed and implied warranties, including the implied warranties of fitness for a particular purpose, merchantability and non-infringement. No other warranty, expressed or implied, whether or not similar in nature to any other warranty provided herein, shall exist with respect to the product sold under the provisions of these terms and conditions. Aeolos expressly disclaims all liability for bodily injuries or death that may occur, directly or indirectly, by use of the product by any person. All other warranties are expressly waived by the customer.

1.5 Limitation of Liability

under no circumstances will Aeolos or its affiliates or suppliers be liable or responsible for any loss of use, interruption of business, lost profits, lost data, or indirect, special, incidental, or consequential damages of any kind regardless of the form of action, whether in contract, tort (including negligence), strict liability or otherwise, resulting from the defect, repair, replacement, shipment or otherwise, even if Aeolos or its affiliate or supplier has been advised of the possibility of such damage.

(Note: some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, so these limitations may not apply to you.) Neither Aeolos nor its affiliates or suppliers will be held liable or responsible for any damage or loss to any items or products connected to, powered by or otherwise attached to the hardware. The total cumulative liability to Customer, from all causes of action and all theories of liability, will be limited to and will not exceed the purchase price of the Product paid by Customer. This warranty gives the Customer specific legal rights and the Customer may also have other legal rights that vary from state to state or province to province.)

Section II Technical Specifications:

Model	Aeolos-V 1KW
Weight	150Kg (tower is not included)
Mill Diameter	2.0 m
Blade length	2.8 m
Start up Wind Speed	2.5 m/s
Survived Wind Speed	52.5 m/s
Rated Wind Speed	10.0 m/s
Certifications	CE
Operating Temperature Range	-10°C~50 °C

Tab. 2.1 Main technology parameters

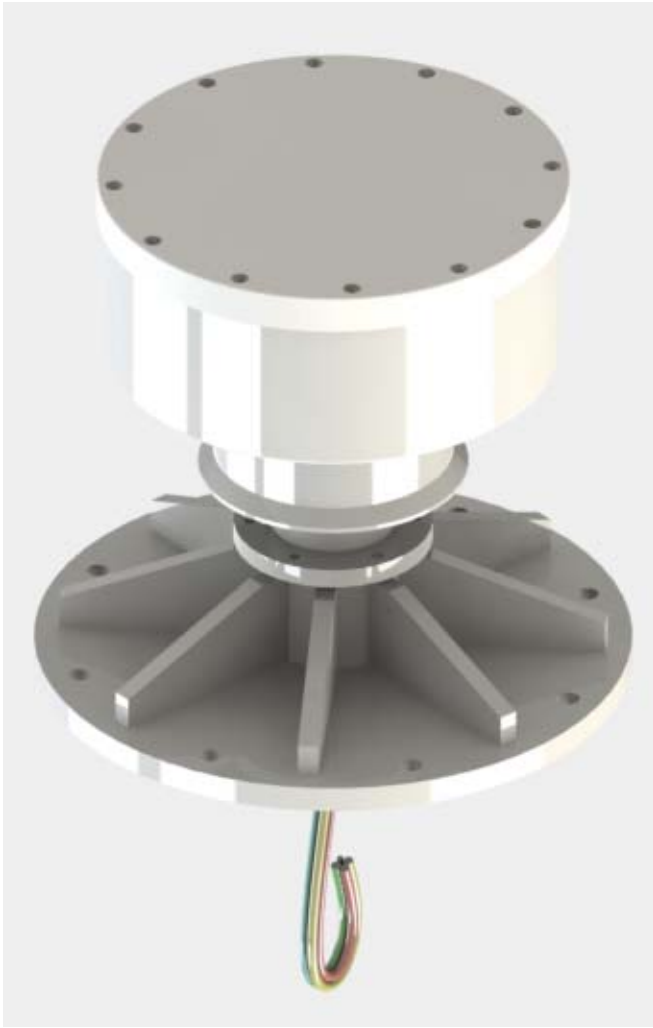
Section III installation instructions of the wind turbine

3.1 Cargo Check

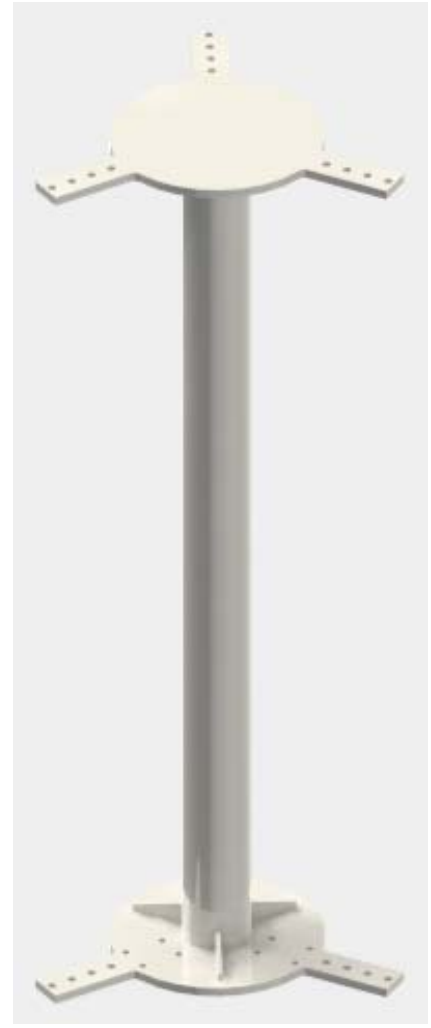
The Aeolos wind turbine is delivered partially assembled, when receiving the bale, please check the parts below that are on right quantity and intact.

Wind turbine:

Item	Name	Quantity
1	Generator	1 pc
	M12×60 Bolt & Plain, Spring Washer & Nut	8 sets
2	Blade	3 sets
	M10×110 Bolt & Plain, Spring Washer	6 sets
	M10×110 Bolt & Plain, Spring Washer & Nut	12 sets
3	Rotor shaft	1 set
	M8×25 Bolt & Plain, Spring Washer	12 sets
4	Blade connection part	6 sets
	M10×80 Bolt & Plain, Spring Washer & Nut	24 sets
	Horizontal connection sub-lever	6 sets
	M10×45 Bolt & Plain, Spring Washer & Nut	12 sets



Generator



Rotor shaft



Blade



Blade Connection part



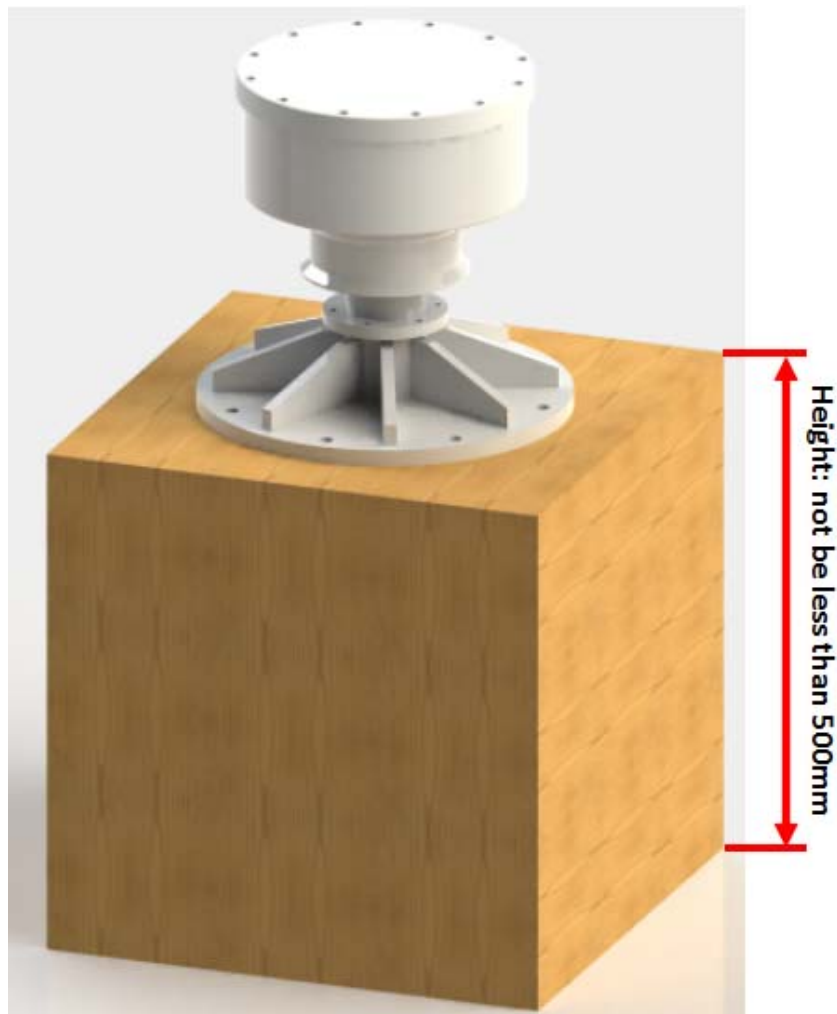
Horizontal connection sub-lever

3.2 Installation Procedure

Step 3.2.1: Assemble the wind wheel

Necessary tools or Material			
item	Name	Quantity	Comment
1	Double offset ring spanner	1 pcs	For M10 Nuts
2	Socket head wrench	1 pcs	For M8 Bolts
3	Socket head wrench	1 pcs	For M10 Bolts
4	Crane	1 set	20T, Lifting height>15m
5	Lifting sling	3pcs	8mm wire rope Lifting sling
6	worker	3	Experienced worker should be better

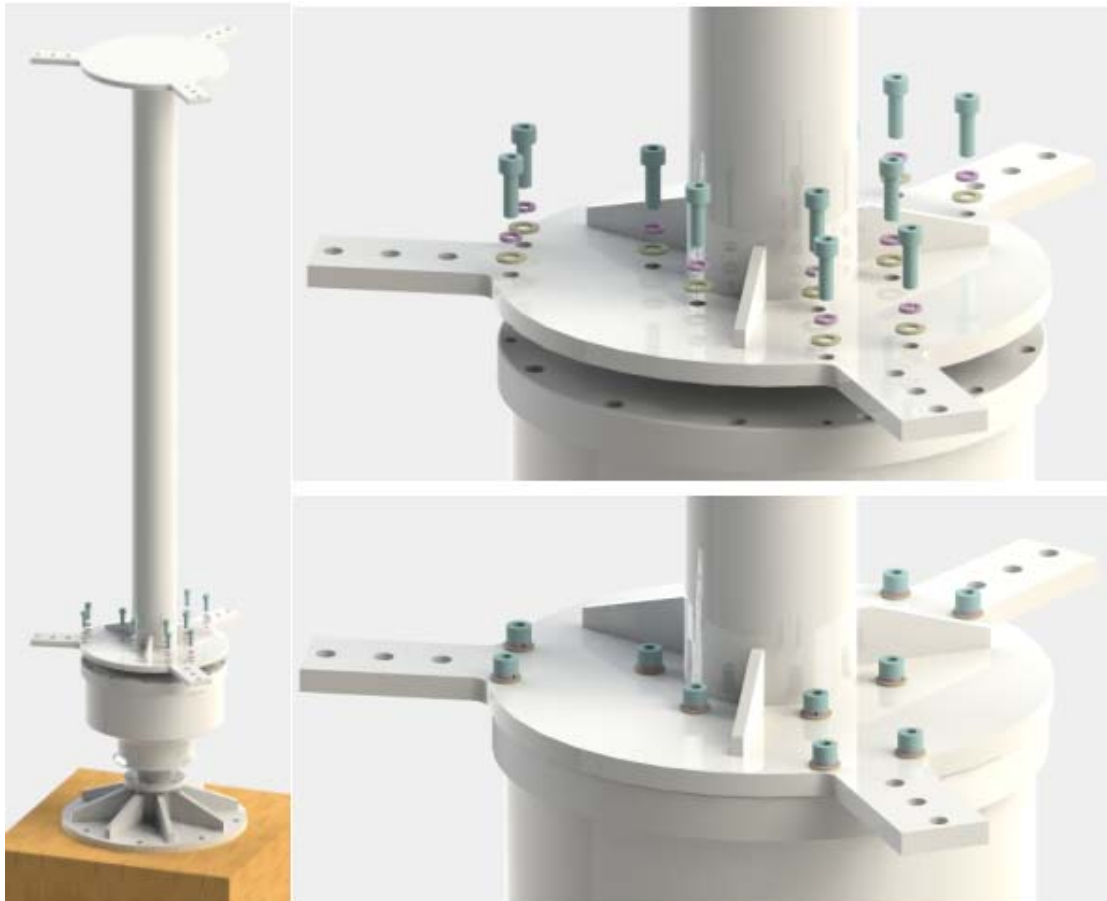
Step 3.2.1.1: Find something (height: not be less than 500mm) with a platform on the top of it, and with a $\phi 100\text{mm}$ hole at the center of it. This is used to place the generator and wind wheel in the initial installation. The installation platform must bear at least 500Kg of weight. As it shows in the picture below:



Step 3.2.1.2: Install the rotor shaft

Place the rotor shaft on the generator, rotate the rotor shaft to align the small flange with the small flange that mounted on the under surface of the generator. At the same time the bolt holes is also aligned too.

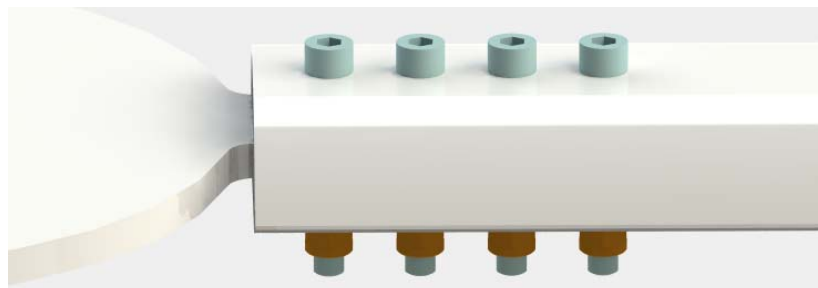
Connect them with fasteners. Screw the socket head cap screws: 12 M8x25 bolts with plain and spring washers. Tighten the fasteners with specified pre-tightening torque.



Step 3.2.1.3: Install the Blade connection parts

⚠ Note: Please keep the fasteners are not tightened, a little adjustment will be taken when to install the blades or the sub-lever.

Take 6 blade connection parts to install on the rotor shaft. Connect them with 24 M10x80 bolts, washers and nuts.



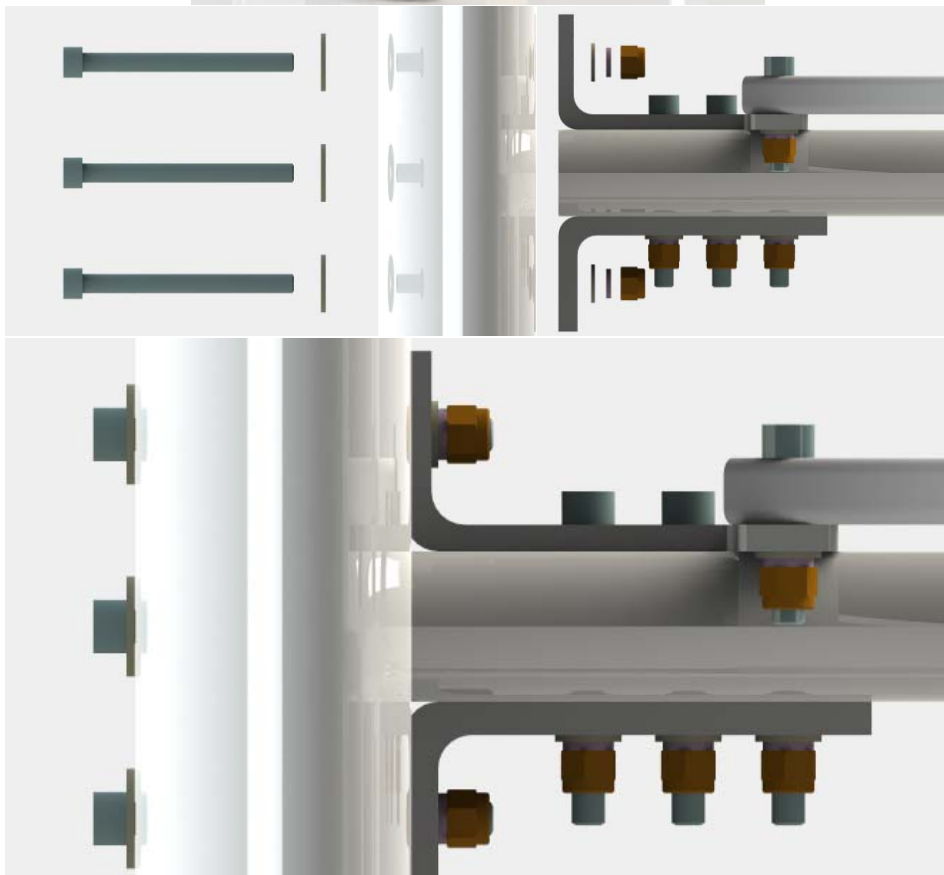
Step 3.2.1.4 Install the Horizontal connection sub-level.

Take 6 horizontal connection sub-level to install on the layer blade connection parts, connect them with 12 M10x45 bolts, washers and nuts.



Step 3.2.1.5: Install the blade

Take 3 blade to blade connection parts and connect them with 18 M10x110 bolts, washers and nuts.





- ❗ **Note:** When mating the flange on the blade to the flange on the blade connection parts, you can adjust the position of the connection part slightly for the fasteners were not tightened. When installed all the three blades you can tighten the all of the fasteners with specified tightening torque.
- ⚡ **Warning:** When installing the generator and blades something must be used to hold the wind turbine to avoid it falling down and destroying the equipment.
- ❗ **Important:** The rotor rotates in anticlockwise from top view. When installing the blades please according to the right way.
- ❗ **Important:** The distance between blades shall be adjusted to equal or the balance will not be good and cause rotor vibration.

Step 3.2.2: Mount the wind turbine on to the tower top

Necessary tools or Material			
item	Name	Quantity	Comment
1	Double offset ring spanner	2 pcs	M12 Bolts and Nuts
2	Crane	1 set	20T, Lifting height>15m
3	Lifting sling	3 pcs	8mm wire rope Lifting sling
4	worker	3	Experienced worker

Step 3.2.2.1: Lift the wind turbine

Place the 3pcs lifting sling at certain place of the wind turbine and lift the wind turbine. Before lifting please make sure the lifting sling is firmly fixed.

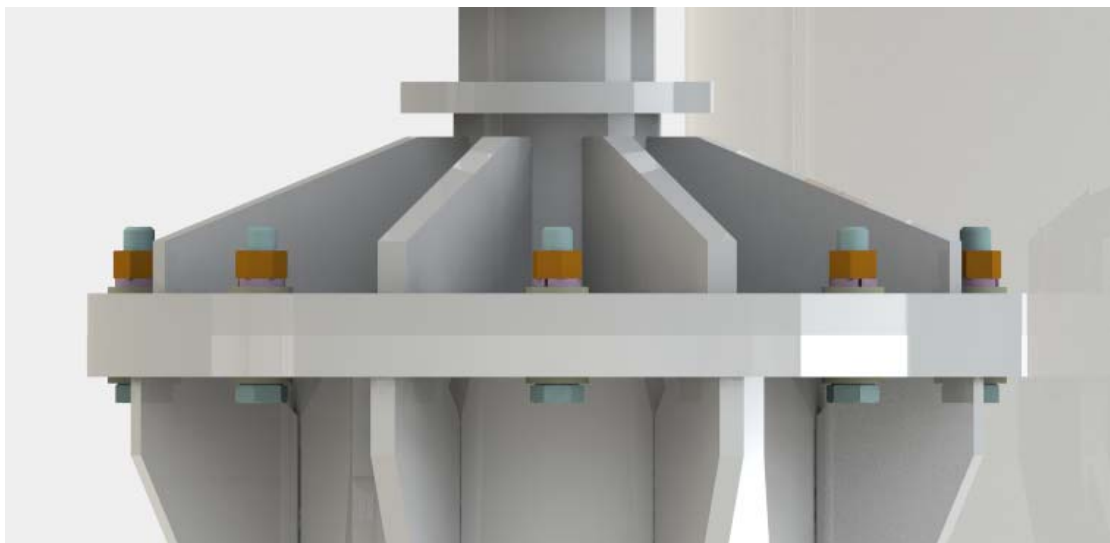
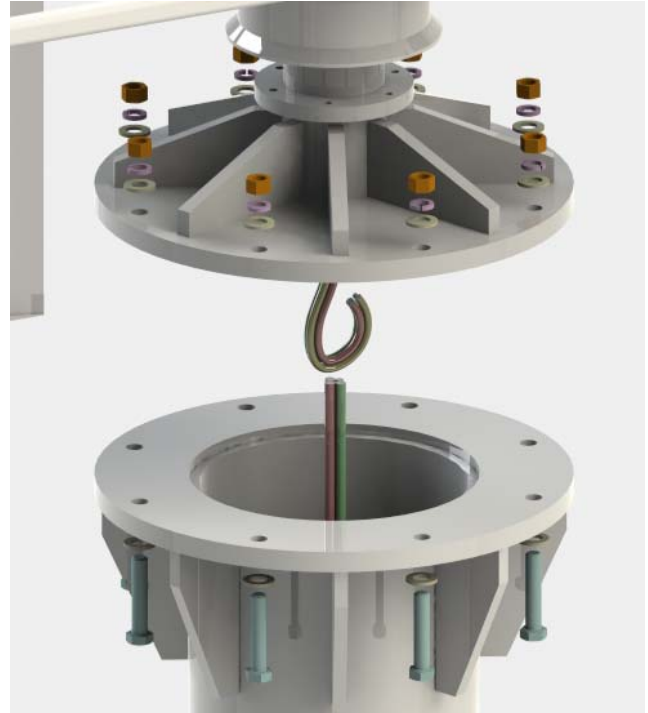
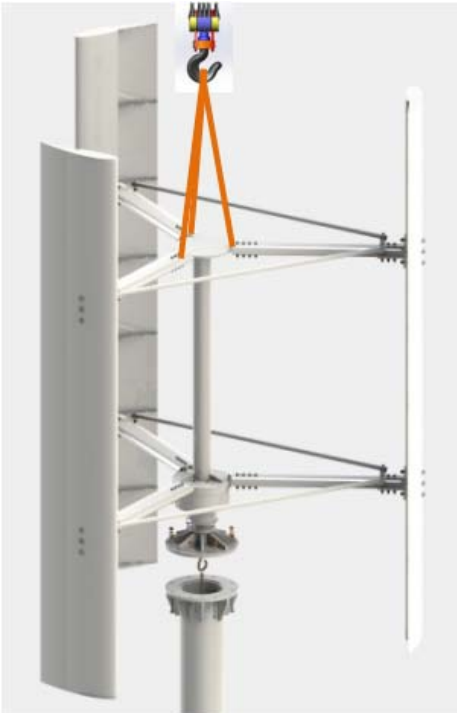


⚡ Warning: The turbine is easy to loss balance when install the blades, so please be careful to complete the installation or ask someone to hold the turbine and keep the turbine balance.

Step3.2.2.2 Connect the wind turbine with the tower

Lift the wind turbine by the crane, and a worker shall be hoisted to the top of the tower to connect the fasteners and connect the wires and oil tube. The bolt holes that drilled on the flange are positioned in the pole, so wrench must be insert the pole from the door to fasten the bolts.

Connect the generator and the tower with 8-M12x60 fasteners, and then tighten them with specified tightening torque.



Appendix: Tightening torque of the fasteners.

I Foundation bolt tightening torque

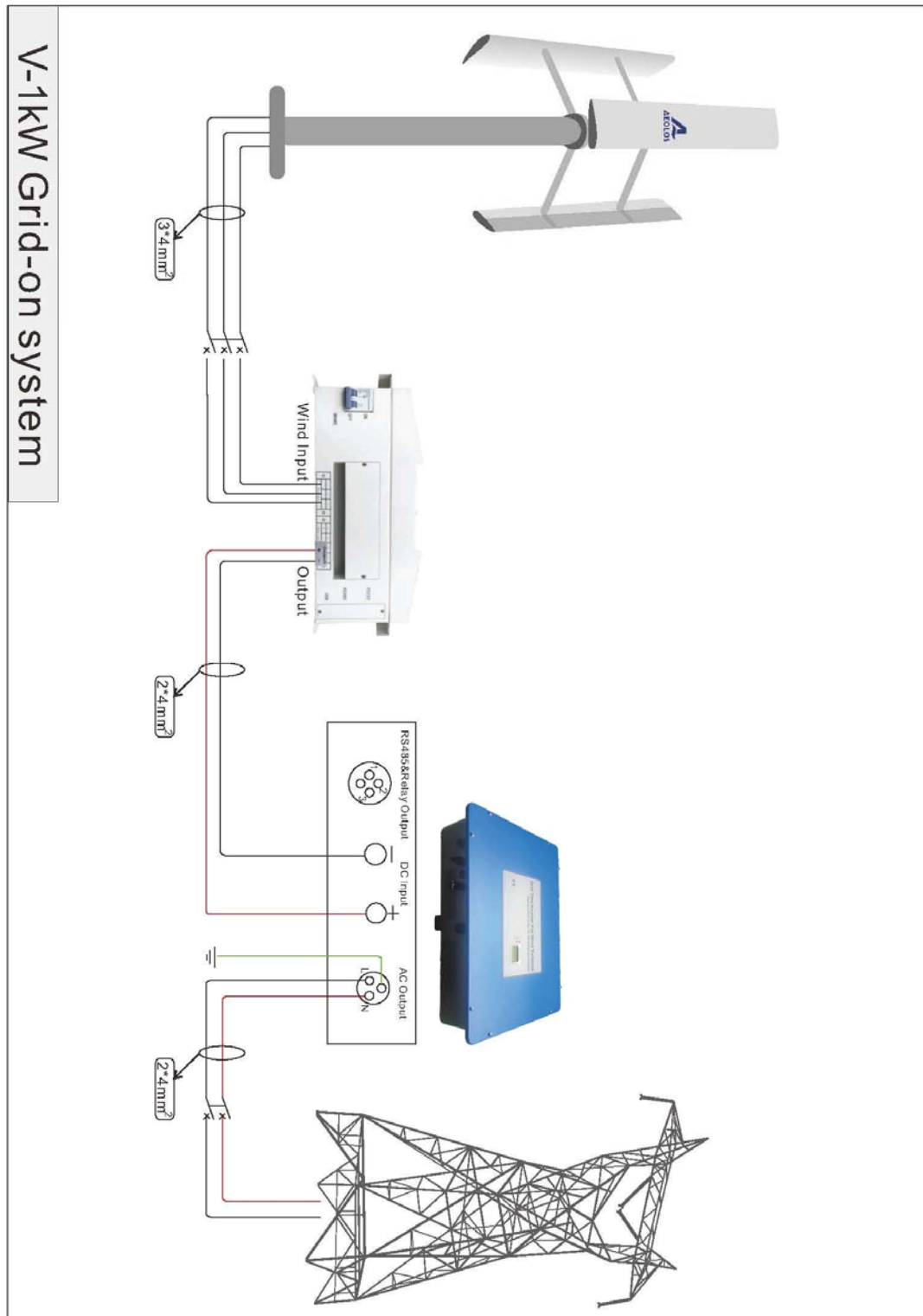
Bolt diameter(mm)	16	20	24	27	30	36
Tightening torque(Nm)	48	95	160	240	320	580

II Tightening torque of the bolts used for wind turbine and tower

Bolt diameter(mm)	6	8	10	12	16	18
Bolt level	4.8	4.8	8.8	8.8	8.8	8.8
Tightening torque(Nm)	6~12	16~26	37~75	73~111	182~245	229~298

Section IV Electric connection and inspection on the ground

4.1 Electric connection



4.2 Parameters setting

4.2.1. MPPT Power Curve:

Voltage (Vdc)	Power(W)	Voltage (Vdc)	Power(W)
50	20.00	140	400.00
60	30.00	150	490.00
70	50.00	160	590.00
80	70.00	170	690.00
90	100.00	180	800.00
100	130.00	190	900.00
110	180.00	200	1000.00
120	240.00	210	1000.00
130	320.00	220	1000.00

4.2.2. Protection Parameters

Dump load voltage (Max Limited Voltage): 250 Vdc

Magnetic Pole number: 28

Peak Limit Rotate (RPM): 220

Please set the protection parameters into controller according to the manual of the controller.

Note:

1. These parameters can be applied on Grid off and Grid on system.
2. Brake Switch on the back of the grid on controller can be used only during the installation. Please do not switch on it when the wind turbine is running fast.
3. Setting Password of Ginlong grid on inverter is: 0010
4. The MPPT power curve should be set into inverter in on-grid system and into controller in off-grid system.

Warranty Card

Dear Aeolos Wind Turbine Owner,

Thank you for your purchase of Aeolos wind turbine. You have purchased one of the most advanced wind turbine in the world! We believe you will find it easy to install and are confident you will experience years of dependable service from it.

Before going any further, please complete the Warranty Registration Card or Warranty Service Card, and return it by E-Mail or letter. (Note: Aeolos Wind Energy does not sell or distribute your personal information party. We understand and respect your privacy.

If you have any questions or comments, we would like to hear from you. Please call during working hours (Monday-Friday 8:00 am to 5:00 pm London Standard Time).

Our number is +44 208 242 1884. Or E-mail us: sales@windturbinestar.com. Again, welcome to our family and thank you for investing in the future of wind energy with Aeolos. Sincerely.

Note: Warranty Register Card for the generator's first run.

Warranty Register Card	
Client Name	
Model Number	
Installation Date	
Installation Location	
Other Requirements	Show us three photos of the working generator's appearance by return

Warranty Service Card	
Client Name	
Model Number	
Installation Date	
Installation Location	
Application Procedure	Tel. Number:
	Email:
Problem Description	
Total Work Period	
Other Requirements	Show us some Photos of the generator's current state by return