



Assembly Instructions

AeroCraft – Mast

Manufactured in Europe by

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Translated into English by Andrew Lord

Assembly Instructions V 01.35/04 Mast



Congratulations on buying an **AeroCraft Mast** for mini Wind Generator Stations (WGS). You have acquired a professional System, manufactured by the leading European producer of Micro- and Mini- Wind Generator Stations.

Prior to assembling the unit we strongly recommend reading these instructions with utmost care. The functioning of the system depends on careful and correct assembly of the mast.

Each AeroCraft WGS has a serial number on the name plate (on the back of the generator below the connecting box). All technical data and production identification numbers concerning the individual components such as generator, rotor or regulator can be retraced by this number. The serial number can also be found on the delivery receipt. Please check on delivery that the numbers correspond.

All information in these instructions has been compiled with utmost care, to insure its reliability.

AeroCraft cannot be held responsible for possible missing information. The user of these instructions or whoever assembles and commissions the system will be fully responsible.

We reserve the right to alter or amend constructional product details without prior notice. No inherent right can be claimed for alterations of previously delivered products.

Installation of a Wind Generator Station may be subject to **planning permission**. Consult your local authorities for further information.



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1.0 Scope of delivery

1	Cement mast retainer (foot retainer) with 2 bolts, each with 2 nuts	
1	Foot unit 1,75	
1	Head piece 1,75 m with flange for generator retainer/azimuth	
2 - 5	Intermediate pieces each 1,75m	<i>depending on height</i>
3 - 6	Mast binders (inner cone), pluggable	<i>depending on height</i>
9 -18	Mast binding nuts M16 SW 24	<i>depending on height</i>
3	Anchor cables, each ca. 20 m	
3	Concrete anchor retainers (swivel holder)	
3	Turnbuckle Tighteners	
18	Cable clamps	
1	Assembly instructions	

Each AeroCraft wind generator station comes with an azimuth bolt and flange fastener.

Different adaptors are available as accessories.

Please check that all the aforementioned parts have been delivered, possible damages in transit must be reported promptly.

If a wind generator was purchased at the same time, small parts and mast accessories are delivered along with the WEA in the packing case.

Necessary tools:

Flat spanner SW 24
Hoisting winch for the erection of the mast
Support to break the deadlock when hoisting
Bolt cutter or metal saw



3.0 General Installation Instructions

The **AeroCraft Mast** is a high quality specialist product for mini Wind Generator Stations (WGS). Assembly and construction require careful planning and execution in order for the mast to be secure.

Check up on lightening protection in the local area. Wind Generator Stations are vulnerable to lightning, especially when erected in an exposed position on a high mast.

For this reason it is highly recommended to fit a lightning arrester onto the Wind Generator Station. This must be carried out by an on site specialist. Our authorised dealers would be happy to advise you on this matter.

From experience it is not recommended to erect segments of the mast directly on top of a building, even if the height is ideal. The vibrations created by the structure-borne sound of the WGA are unpleasant. Insulation units could affect the stability of the frame.

Ideally the mast should be built on a level surface so that the concrete foundations are balanced. The anchor cables can then be fitted into the ground.

Take into consideration the amount of space needed to bring the mast down as well as hoisting it.

4.0 Concrete Foundations

A 1 m³ of concrete B165 is necessary for each of the concrete cast feet (1 mast retainer and 3 cable retainers). The orientation and distance of the foundations from each other, is dependent on the height of the mast and can be taken from the enclosed diagram.

The concrete foundations should be flush with the earth's surface or just protrude slightly. Make sure that the foundations are all at the same height with cord and a spirit level. The reference point for all specifications are the attachment points (the stays), each in the dead centre of the foundation. The concrete is to be laid down earth-moist, with structural steel mats, reinforced to plan. The reinforcement should lie about 10 centimetres under the surface and not protrude downwards into the ground out of the concrete. Do not use stones or any other filling material the foundation must only consist of reinforced concrete.



When setting the feet in concrete make sure that they are in the correctly measured position and remain in alignment using a spirit level. It is important for the mast retainers to stand upright! Make sure that all the parts are in the correct position (tilting direction, positioning of the anchor lock).

5.0 Assembly and Positioning of the Mast

It is advisable to assemble the mast on a flat, level surface on the ground (not far from the installation location or inserted into the concrete cast foot retainers with the lower bolts secured – with the lowest possible pivotal point in order to erect it.

The individual parts are interlinked with the inner cone. The connecting nuts are attached to the outer rod and carefully tightened so that the screw threads of both ends have gripped. Tighten up all three connections at the same time. Turn the connecting nuts evenly (right-/left-screw thread M16). The pipe will then be pulled into the cone mast binder (connector).

Check continually with a spirit level and a long, straight slat that the assembly is in alignment. You can correct the alignment by adjusting some of the union nuts.

Bring the mast – in the middle, as near as possible to the root point on a support, e.g. a stable ladder or a trestle - the higher the better, so that it lies tilted and the cone point is off the ground in order to break the deadlock.

The mast top is prepared so that the azimuth support with clamping collar can be simply mounted (see diagram). The mounting of the heavier equipment parts can be done easiest on the ground with the mast laid down. The generator cable should be passed through the mast pipe.

6.0 Stays/Catenaries

The turnbuckles should be screwed out equally the same distance on both sides (at least 2/3) and attached to the anchor cables (so they can be screwed in).

Three cables (each over 20 m) come with the delivery which need to be cut to size for assembly (bolt cutter or metal saw). The ends should be wrapped around with duct tape so that they don't unravel.

It is recommended to pass the piece of cable round the mast with a rubber hose or with a textile belt so that it doesn't rub on the mast pipe.



Pull the other end of cable A, which is attached to the extension of the slide tilting axis, through the eye of the appropriate turnbuckle. Attach it once more to the mast pipe in the middle, in a loop with a cable clamp.

Cables B should be prepared but not yet attached. These tensioning wires are to be held by helpers when the mast is erected. The anchor cables go in the space between the mast rods.

Anchor cable A can be tightened in order to stabilise the erection. It would be dangerous to attach and tighten the other two cables B: A cable could break off or the mast could be twisted.

If in doubt it is better to slacken the cables a little – the hoisting rope must be able to hold the mast on its own when it is being erected. The anchor cable could be tightened by helpers.

Protect your hands with gloves!

The hoisting rope is necessary for the erection of the mast. The longer the rope (depending on the construction situation and the available room) the better the hoisting angle. The hoisting rope must be at least 8mm thick and placed as far as possible on the top of the mast, above the anchor cables. The hoisting can be done with a hoisting winch, a chain hoist or with a vehicle e.g. tractor or car.

Secure the mast with 2 bolts as soon as it is upright. Screw the bolts firmly and secure them with a counter nut.

Choose a windless day for the assembly of the mast. Make sure you secure the WGS in such a way that the rotor blades cannot start to turn.

Secure both cables B as described for cables A. Tighten all three cables equally with the tightener and align the mast straight. Pay attention to the safety precautions! Only climb the mast to unfix the hoisting rope at the top of the mast when it is fully secured.

Masts which are at least 12,25m high must have a second restraint in the middle. The AeroCraft concept provides for a single run cable – from the highest mast mount through the swivel to the middle part of the mast mount – to be used for both anchor points. When this isn't practical the cabling can be fitted one after the other at different heights.

7.0 Tips

All bolted connections (as well as the cable clamps) should be checked regularly in the first few weeks and retightened if necessary. The anchor cables must also be



regularly checked and retensioned, as the steel cables stretch under the strain at first. The cables must be clamped taut.

8.0 Conditions of Warranty

- AeroCraft guarantees that the parts of the mast will not have any material or working faults. AeroCraft will replace any defective parts if defects are due to material or working faults. This guarantee lasts for 24 months.
- If the delivery item has to be dismantled and reassembled as a result of defects it will be done by the buyer without any costs for AeroCraft.

Warranty does not cover:

- Regular inspections, maintenance, repair or exchange of mast or parts damaged during erecting.
- Transport, cargo costs and risks directly or indirectly relating to the warranty. The transfer of indirect consequential charges is excluded, as far as applicable laws are not opposed.
- Damage caused by irregular usage or incorrect installation, in particular installation of an unsuitable WGS or other appliances on the mast. In case of claims against **AeroCraft**, the customer will have to present proof that the mast is suitable and installation was carried out correctly.
- Any accidents, force majeure, or other occurrences outside the responsibility of AeroCraft, in particular lightning, water, fire or disturbances of public order.

Unless otherwise applicable through national laws, the claims upon AeroCraft will be limited to the extent of these warranty conditions. Neither AeroCraft nor its authorized dealers will accept any further liability for direct or indirect damage.

Anything not mentioned above is covered by the general delivery conditions for products and services in the electrical industry.

Your
AeroCraft -Team

Gödecke Energie- und Antriebstechnik GmbH