

Please check the completeness of the delivered antenna kit with the parts list on the invoice. All parts needed for self-construction should be in the kit, except a mast clamp. It is available as accessory.

**This manual is only a recommendation on how you can build up a working antenna with the delivered parts. Individual adjustments are possible. In all cases the customer is responsible for the proper function of the antenna.**



**For this kit you need a 4mm thread cutting tool for internal and external thread! And at least some experience in thread cutting.**



**All lengths and measurements of our antennas have to be followed exactly, otherwise you will not have the predicted results.**



**Lightweight yagis are not constructed for permanent installation and may be damaged by wind and weather. But they are very good for all outdoor activities, for example SOTA, where less material and less weight is advantageous.**



### **Hints for this antenna type**

This antenna is constructed for fast and uncomplicated mounting and therefore is mechanically sensitive. Because of the low own weight it is possible to mount it on a glass fibre pole. When mounting on a glass fibre pole you should check that the elements cannot slide together, because your antenna elements could be deformed when the antenna is sinking down fast.

For short activities you can fix the elements with insulating tape and cable straps.

The antenna is constructed for wide band usage, so it will work fine in the main band between 50.0 and 50.25 MHz with good tolerances.

### The boom rod

The PVC boom rod has 25mm diameter and is being delivered in two parts. The delivered pipe caps can be attached to the ends if needed.

### Preparing and mounting the reflector



The reflector is 3 parted. The inner piece is a 6x1mm aluminum rod and 1100mm long, because you would not get the needed length with a 1m rod. In the end of this 1100m 6mm rod you have to make internal threads with 4mm (M4). I recommend a length of 30-40mm. At the ends of the 4mm aluminum rods you have to make 4mm (M4) external threads, also with 30-40mm length. **Do not make the threads too long, because you would not reach the full length!** Now rotate the 4mm rods into the 6mm rods until it stops. The 4mm rod should be tight, but not too tight, because aluminium is weak and the thread could be damaged! Now cut the ends for the needed lengths. The part in the inner of the 6mm rod does not count to the length, only the visible part! Please mark the elements clearly, so you cannot mix them up in future. Every element is individual with his thread. For further construction you can take the ends off the 6mm rod. Drill a 3mm hole into the

middle of the 6mm reflector rod, for mounting the element later on the boom. Also the boom needs a 3.0 or 3.5mm hole on the specified position. The element is being mounted with the polyamid element clamp and the M3x40mm screw on the boom.

### Making the dipole:

#### Preparing the box



Cut the lugs from the end of the box. On the one side cut a 16mm hole into the membrane for the coax socket. For mounting the box on the boom you need two holes through the bottom. One at the dipole position, and the other at the opposite side (please check that the screw and the coax socket are not short-circuited). In our sample the hole for the dipole was about 8mm away from the wall, and on the coax side it was 16mm away from the wall (here you need more space because of the coax socket).

The PVC clamps are connected with screws and flat washers to bottom side of the box.

## Der Radiator

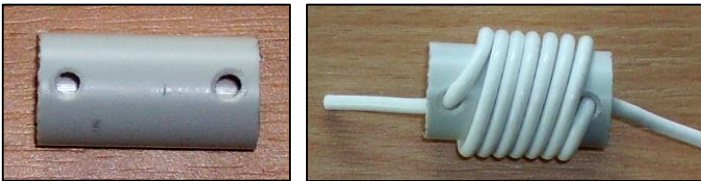


The radiator has also a 6mm round rod in the middle and 4mm tubes in the ends, but the middle 6mm part is split into two parts (each 450mm) and will be connected together with the dipole connector. The 4mm rods are connected the same way as with the reflector with threads. The break in the middle of the dipole connector is 10mm. You can subtract this break from the 6mm rod or the 4mm rod. Only the full span from end to end of the dipole is essential. The middle hole in the dipole connector has to be made a little bit bigger with a 4mm drill. Put it into the box and then

make 6mm holes into the side walls for the 6mm tubes. Push the 6mm rods through the wall into the dipole connector, until it stops. If the holes are too tight, you can use a bigger drill for the holes in the wall.

At the dipole you can drill **(very carefully!)** two 2.5mm holes through the contact holes of the dipole connector into the dipole rods. Carefully turn the 2.9 x 9.5mm screws with the solder lugs into the dipole rods until it stops. Now you can also mount the coax socket into the box.

## The choke



Antennas with 50 ohm impedance do not need any transformation, but we make a small coil of coax to suppress sleeve waves. Use a piece of the rest 25mm PVC rod with 40mm length and make two small 3.5mm holes at the end to pass through the coax cable. Now

you can wind up the RG188 PTFE coax cable onto the rod (you should have at least 5-7 windings). You should check that the cables are tight together. You can also fix the cable with some insulating tape. Dismantle the ends of the coax. Solder one end to the dipole rods (solder lugs) and the other end to the coax socket (shield to shield and conductor to the centre contact). Check that the connection lines are as short as possible.

Now you should be ready with the antenna.

**Last works and adjustment:**

Mount the antenna in 6-8m height over ground and make a VSWR test. You should not see any big return.

If all is ok, you can close all openings of the box with some hot glue or silicone.

If the VSWR curve is not optimal, some adjustments with the dipole length could help. But remember that at this "low" height also the ground can have effect on the VSWR curve. Also the coax cable needed to connect the rig can have a transformation effect at special lengths. Also buildings and trees in the near of the antenna can have negative effect. But normally the antenna is broad band enough to compensate all these influences.

**Tip:** First check the element lengths and distance before changing anything. Also there should not be any short circuit between the two dipole halves.

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**If you have critic or suggestions regarding this manual, please contact us:**

Attila Kocis Kommunikationstechnik  
Lenzenweg 2  
D-96450 Coburg  
GERMANY  
Fax: +49 9561 3551883  
E-Mail: [nuxcom@nuxcom.de](mailto:nuxcom@nuxcom.de)

**Disclaimer:**

Drilling, cutting and other technical work have to be done carefully and can hurt you. We are not responsible for any accidents which result in following our instructions in the manual. Please be careful.