



## MANUAL

UB-20MX / UB-50 / 2 EL. 6-40



*Revision 1.4, 2024-01-24*

**WiMo Antennen und Elektronik GmbH**

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## INTRODUCTION

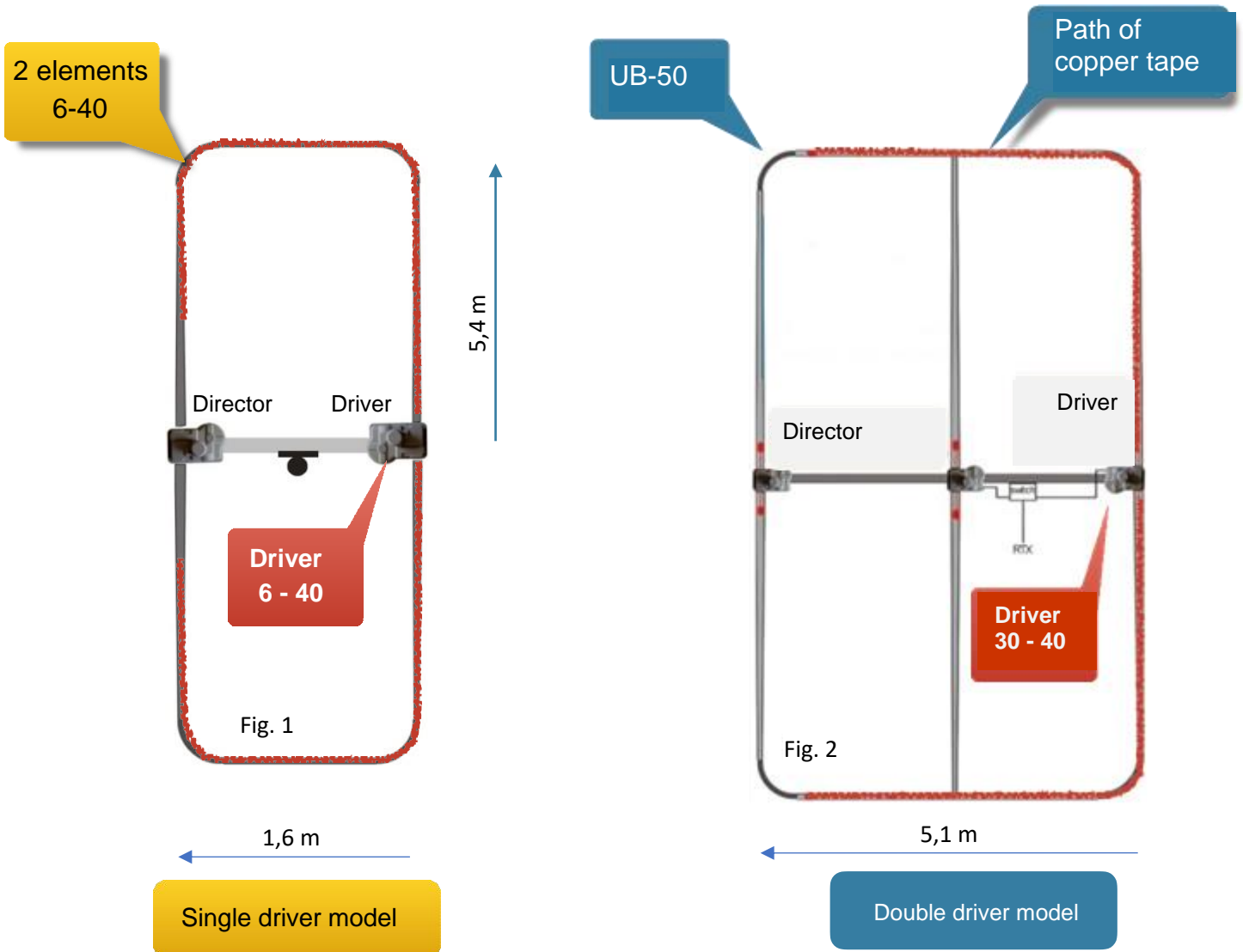
Some UltraBeam models operate on the 30 and 40 meter bands with folded elements. This allows you to work on these bands with full-size elements in the same dimensions as the 6-20 models.

This technique is applied to 2 and 3 element Yagi models.

In these two models, curved sections are attached to the ends of the elements, which are connected to each other by fiberglass tubes. This creates a corridor in which the copper tape can wind up and reach the required length to be resonant up to the 40 meter band.

Figures 1 and 2 show in red the path and shape of an inverted "C" in which the folded dipole is operated on 40 meters.

**NOTE:** This manual refers only to the assembly of the arcs, side elements, and the other specific parts of the antennas operating on 30m and 40m with folded elements. For all other antenna mounting instructions, see the "Standard" manual.



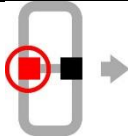
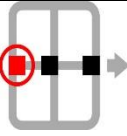
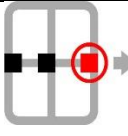
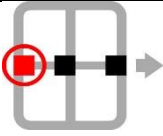
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## PVC GUIDE TUBES DRIVER

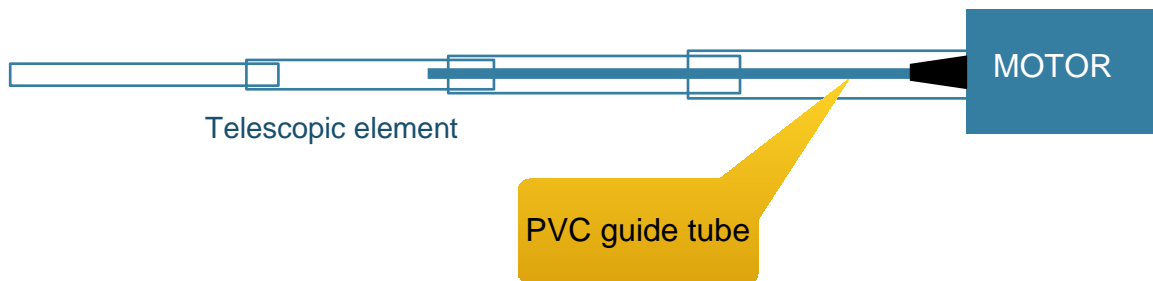
All UltraBeam models with folded elements have internal guide tubes on the left and right elements that are connected to the motor unit.

### Elements with internal guide tubes

Model	2 EL. 6-40	UB-20MX		UB-50
Position of elements with internal guide tube				
	Driver	Reflector/Driver 2	Director	Reflector/Driver 2

The guide tubes are an important part of the design so that the copper tape can also move inside the curves and the side elements without bending.

The guide tube consists of two sections of PVC pipe 2 x 1500 mm with a total length of 3 meters.



"You can't stick on dirt": Degrease the ends of the pipe with thinner, spirit or similar and then avoid touching the bonding area. Join the two parts with commercially available electrician's insulating tape (not supplied, Figs. 1 - 3). The adhesive layer of the insulating tape should 'smear' as little as possible and also be as heat-resistant as possible so that it does not dissolve later in the sun..

#### Internal PVC guide tube

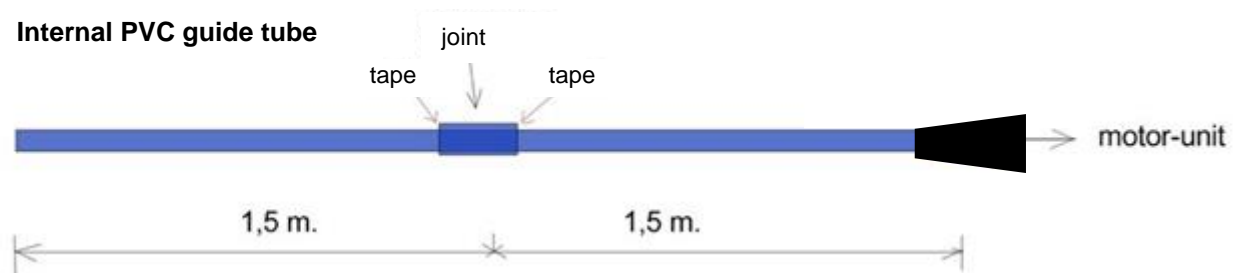


Fig. 1



Fig. 2



Fig. 3

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## MOUNTING THE ELEMENTS TO THE MOTOR UNIT

Before inserting the GRP elements into the motor unit, the PVC guide tube must be fixed. During this process, it is necessary that the element remains aligned with the motor! If your assembly facility does not allow this, it is essential that a second person supports the element while inserting the guide tube (Fig.).

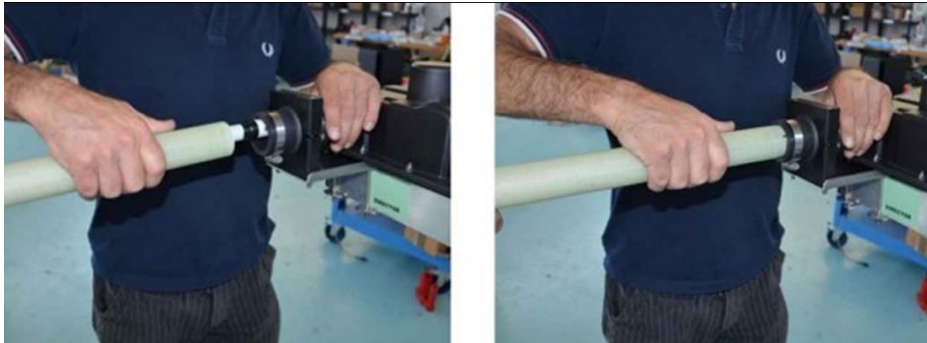


When mounting the element to the motor unit, push the previously glued PVC pipes into the GRP telescope, then insert the GRP telescope into the motor unit as far as it will go. This clamps the black funnel.

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Then attach the rubber sleeve and tighten the clamps.



**Important note**

*Mount the guide tube very carefully. In case of possible detachment of a tube, the copper strip will inevitably bend and affect the motor functions of the device.*



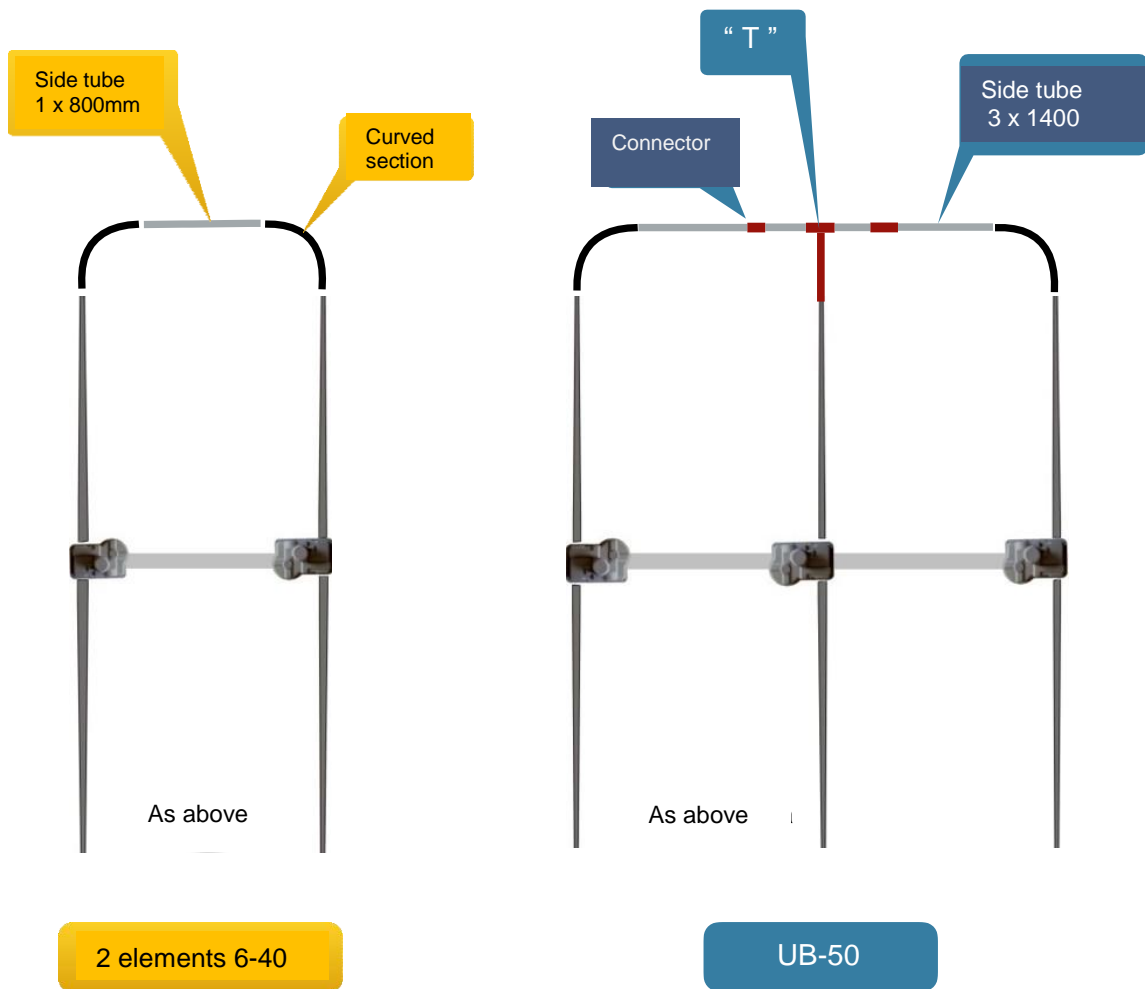
The procedure for mounting the guide tubes is the same for all models with folded elements.

- 2 EL. 6-40
- UB-20MX
- UB-50

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## MOUNTING OF CURVED SECTIONS AND SIDE TUBES



**Only after you have attached all elements to the motor units, you can mount the curved sections and the side elements.**

Fiberglass tubes with a diameter of 20mm are used for the side elements.

The antenna 6-40 with 2 elements uses a single tube of 800 mm between one arc and the other.

The UB-50 uses three tubes of 1,400 mm diameter connected by two glass fiber joints for a total length of 4200 mm.

In both cases, all curved sections and tube joints are fixed by means of thermally sealing jackets with high mechanical strength and internal adhesive, which guarantee strong, durable and watertight joints.

On the UB50, a "T" mechanically connects the end of the center element to the side elements in such a way that the weight of the entire side element is distributed across all three elements.

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## 2 ELEMENTS YAGI 6-40

A heat gun (1500 - 2000W) is required to apply thermo shrinking sleeve.

The heating time varies depending on the outside temperature, and in any case the correct temperature is reached when the inner glue comes out, creating a ring around the edges.

Insert the side tube and the ends of the elements in the curves up to the maximum insertion (Fig. 1). Before heating the sleeves, check that the side tube is parallel to the boom to avoid a typical "candy" shape.

Push the sleeves exactly into the center of the bonding area and heat them as described above. (Fig. 2)

**NOTE:** Clean the joint surfaces of the pipes and curved segments before applying the sheathing. Avoid any twisting and movement of the joint until it has cooled down completely. The curves have drain holes, please make sure that they face downwards (Fig. 3).

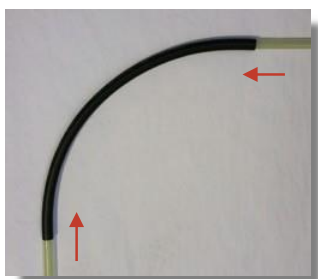


Fig. 1



Fig. 2



Fig. 3

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## UB-50 Yagi

The work steps for producing the arch transitions are identical to those of the "2 element version". The difference between the two is the length of the longer side section, which is made up of three segments and also has a T-shaped center support (Fig. 4).



Fig. 4

Before connecting the three elements with joints, you must insert the "T" support. Slide into the T the tube element, which will be placed in the center. Without fixing it will be aligned with the middle element of the antenna at the end of the assembly.



Join the 1400 mm tubes by placing the 10 cm long tubes exactly in the center with respect to the joint (Fig. 4-5). Slide the heat shrink sleeves over them and heat them to the correct temperature (Fig. 6). Drill a small 2-3 mm hole on the same axis in the center in both junctions (Fig.7).

**NOTE:** It is important to check that the holes are facing down before heating the heat shrink tubing that holds the entire side element to the curves.



Fig. 4



Fig. 5



Fig. 6



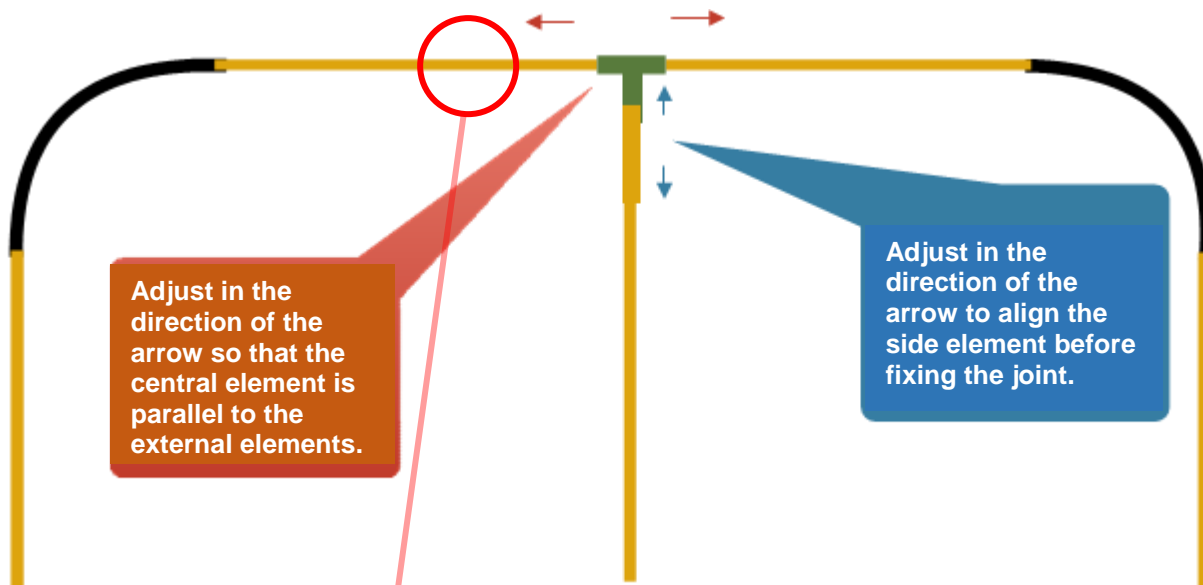
Fig.7

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## FASTENING / ADJUSTING THE "T" SUPPORT



Insert the T-shaped tube to the end of the antenna center element.  
The tube has sufficient length to push the element inwards.

This allows telescopic adjustment in the direction of the arrows, which is helpful in setting the correct position of the T so that the entire side panel remains perfectly aligned (aesthetic factor only). Any alignment that is not quite perfect will not affect antenna operation in any way. Once the exact position is found, the T-tube is fixed to the end of the telescopic element with the shrink sleeve.

Move the T inserted in the side panel sideways in the sense of the <arrows> to set parallelism between the antenna elements. It is not necessary to glue the T element in place. You can also let it slide freely so that it always finds its natural position.

**UB-20MX only:** first connect the two side pipes with the supplied GRP sleeve and heat shrink tubing:



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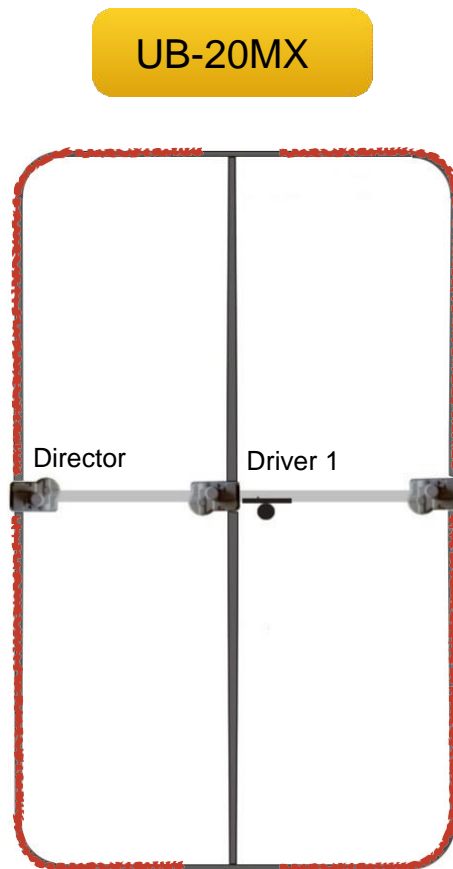
## UB-20MX

Model UB-20MX differs from UB50 in the size of the elements and the boom. In addition, 2 elements operate on the lower frequency.

Regarding the mounting instructions of the curves and side elements, they are absolutely identical to the UB50 described in this manual.

In these two models, the PVC guide tubes are mounted on both sides of the external antenna.

The figures show the copper band path that allows the two antennas to operate as a 2-element Moxon configuration at the lowest frequency at which the model operates.



2 elements Moxon when working on 20 m

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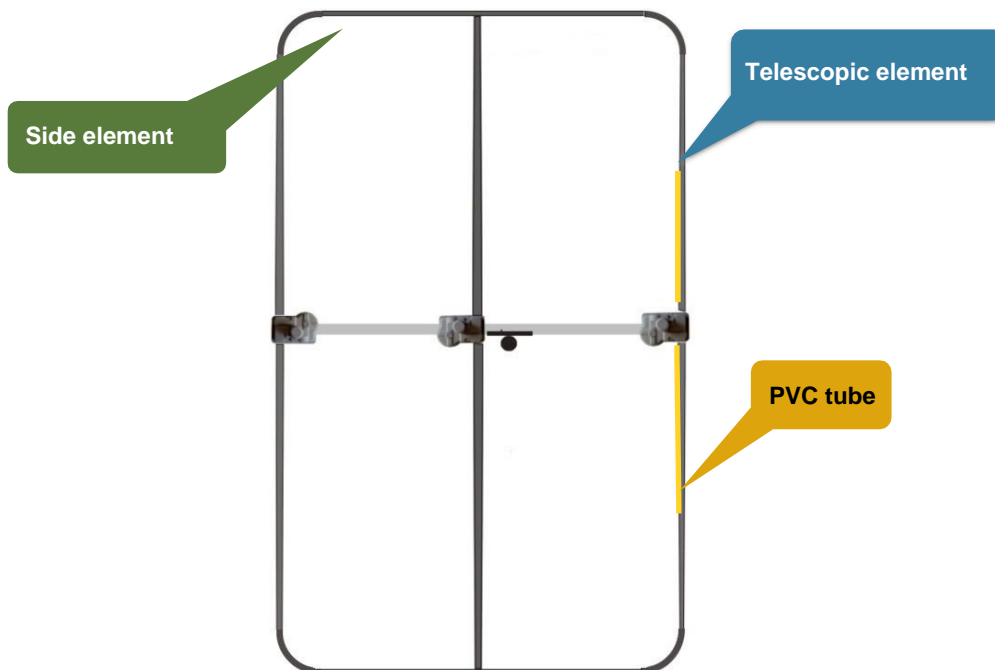
## TELESKOPIC ELEMENTS

MODEL	LENGTH OF TELESKOPIC ELEMENTS
2 EL. 6-40	5.4 m
UB-20MX	4x 3.4m (outer elements) 2x 3.5 m (center element)
UB-50	5.4 m

## SIDE TUBES / GUIDE TUBES

MODEL	SIDE TUBE LENGTH	PVC TUBE LENGTH
2 EL. 6-40	1 x 0.8 m	2 x 1.5 = 3 m
UB-20MX	2 x 1.15 = 2.3 m	1 x 1.5 m
UB-50	3 x 1.4 = 4.2 m	2 x 1.5 = 3 m

**NOTE:** The sizes listed in the table apply to one antenna side only (page 6).

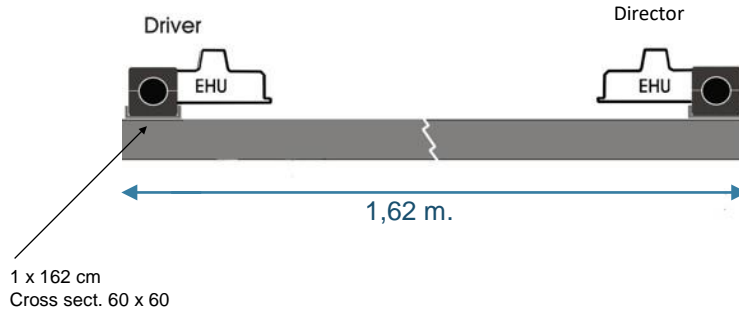


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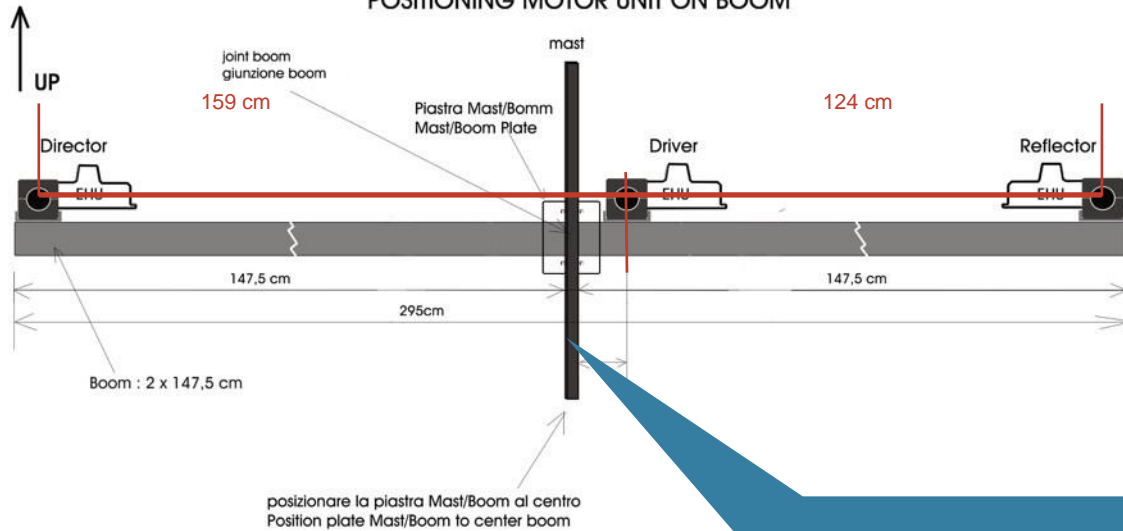
# ANTENNA DIAGRAMS

## 2 ELEMENTE 6-40



## UB-20MX Diagram

POSIZIONAMENTO MOTOR UNIT SU BOOM  
POSITIONING MOTOR UNIT ON BOOM



For models with 3 elements, the position of the mast plate is always at the central segment of the boom. In cases where it is necessary, you can move it towards the director, this provides more space between the central element and the mast.

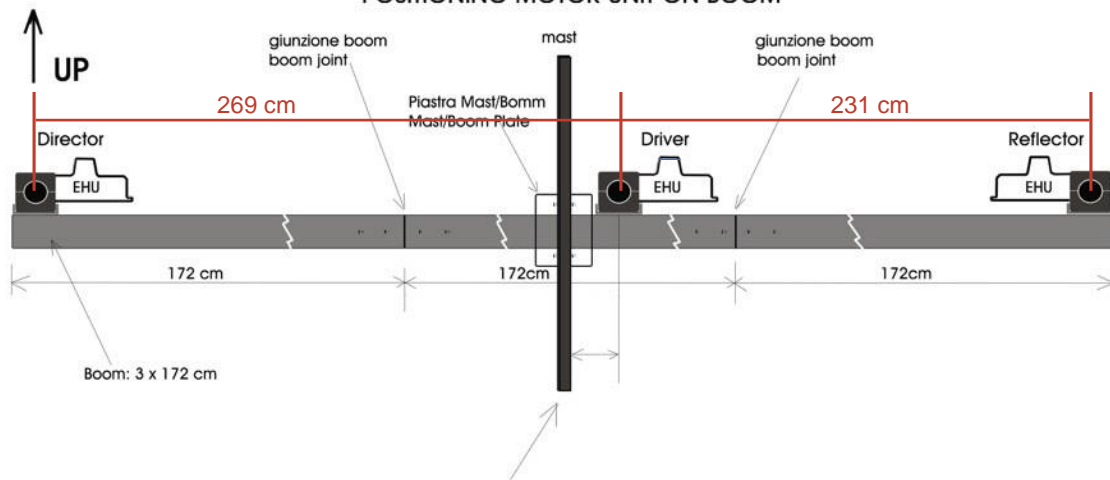
*Description on page 6 of the standard manual*

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## UB-50 Diagram

POSIZIONAMENTO MOTOR UNIT SU BOOM  
POSITIONING MOTOR UNIT ON BOOM



**Note:**

*UB20 - UB50 - are models with dual driven element, download the manual "Switch".*

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