

# **Ultra Beam**

**Dynamic Antenna Systems**

## Manual

UB20 / UB40 / UB50 / 2 EL. 6-40



Rev. 1.10

**WiMo Antennen und Elektronik GmbH**

Am Gäxwald 14, D-76863 Herxheim Tel. (07276) 96680 FAX 9668-11

<http://www.wimo.com>

e-mail: [info@wimo.com](mailto:info@wimo.com)

# Introduction

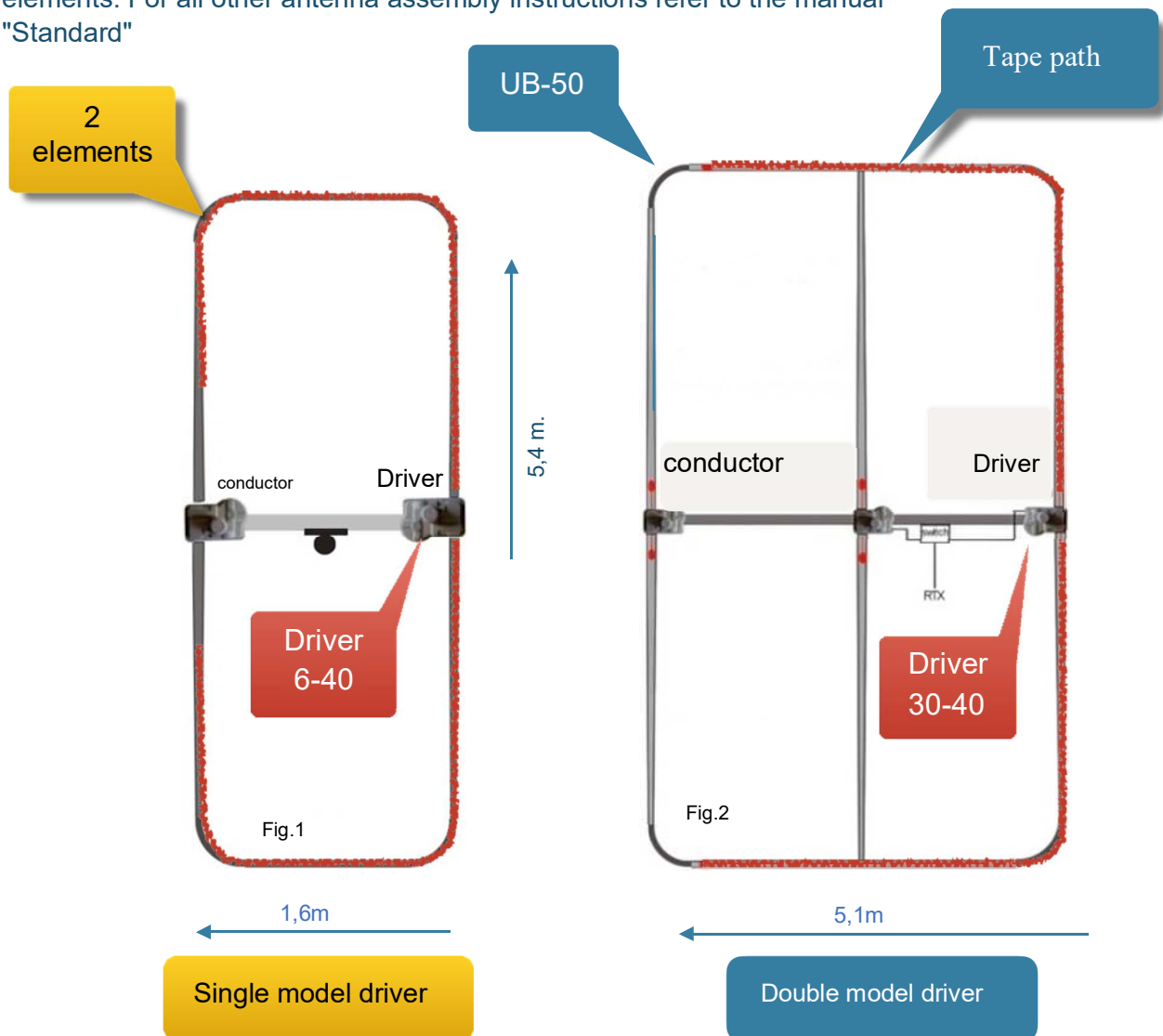
Some UltraBeam models work in 30 and 40 meters band with folded elements, this allows you to work on 30 and 40 meters with full-size elements in the same mechanical dimensions of UltraBeam 6-20 models.

This technique has been applied on 2 and 3 element Yagi models.

In order to achieve that two curve models are applied to the ends of the elements, joined together by glass fiber tubes, this creates a corridor in which the copper tape can scroll to reach the required length for resonating up to 40 meters.

Figures 1 and 2 show in red the path and the shape of an inverted "C" which the folded dipole looks like when operating on 40 meters.

NOTE: This manual only refers to the installation of the curves, side elements and other specific parts of the models which work on 30m and 40m with folded elements. For all other antenna assembly instructions refer to the manual "Standard"

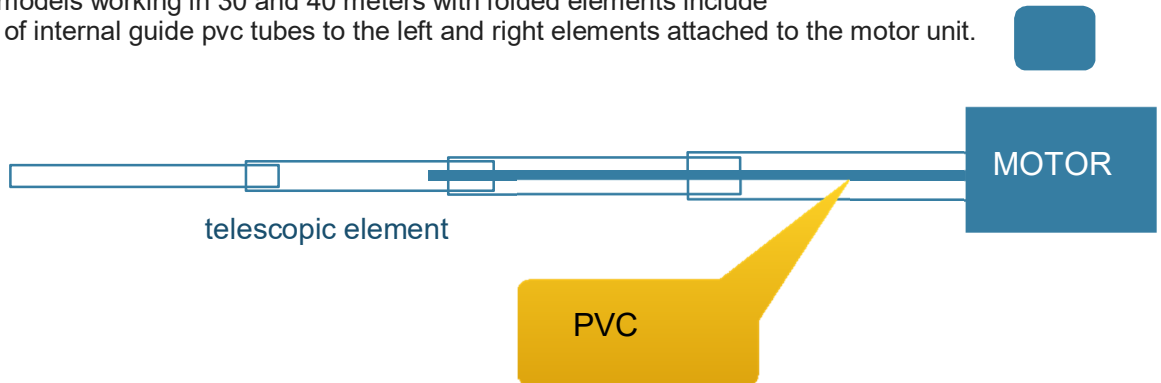


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# PVC GUIDE TUBES DRIVER 30-40

All UltraBeam models working in 30 and 40 meters with folded elements include the installation of internal guide pvc tubes to the left and right elements attached to the motor unit.



The guide tube of folded elements is essential to allow the tape to slide within the curve and the side elements without bending. The guide element is composed of two sections of PVC pipe (2 x 1500) with a total length of 3 meters. Connect the two sections with PVC joining and common insulating tape. Insert a second junction to one of the two ends, this will subsequently be used to attach the guide tube to the motor unit (Fig.1-2)

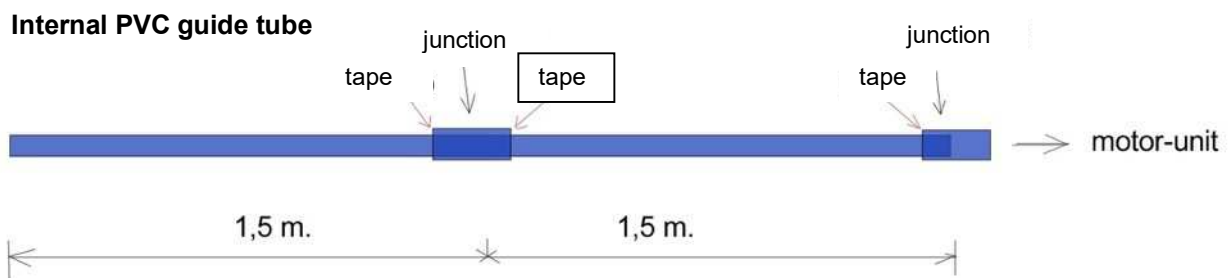


Fig.1



Fig.2



Fig.3

Insert the guide tube into the previously prepared the element (Figure 3)

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# INSTALLATION OF ELEMENTS ON MOTOR UNIT

Before inserting the elements in the motor unit it is necessary to fix the PVC guide tube. During this operation it is necessary that the element remains aligned to the engine, if your set-up assembly does not allow this, the help of a second person is absolutely needed to support the element during the insertion of the guide tube.

Applied during the construction phase, the inner PVC tube to be inserted into the engine contains a bi-adhesive that will keep the junction steady in time (fig.4)

Push the PVC pipe until it reaches its maximum insertion (Figure 1)

Carefully push the element into the motor unit until it stops (Fig.2-3) and tighten the clamp of the rubber cap.



Fig.1



Fig.2



Fig.3



## Important note:

Be carefully while mounting the guide tubes.

In case of possible detachment of even a single tube, the copper tape will bend inevitably compromising the unit's motor functions. ....

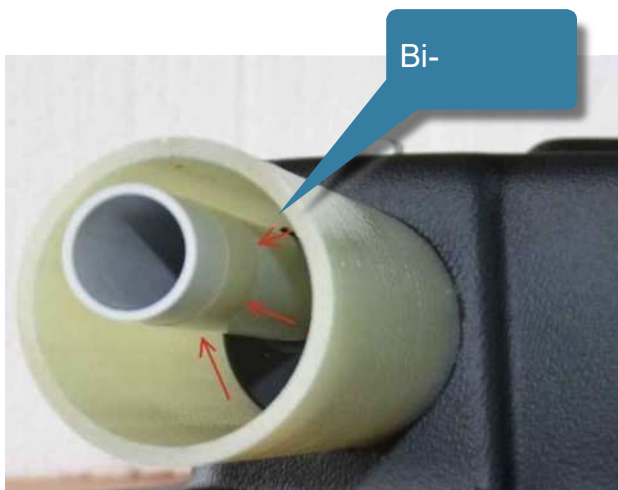
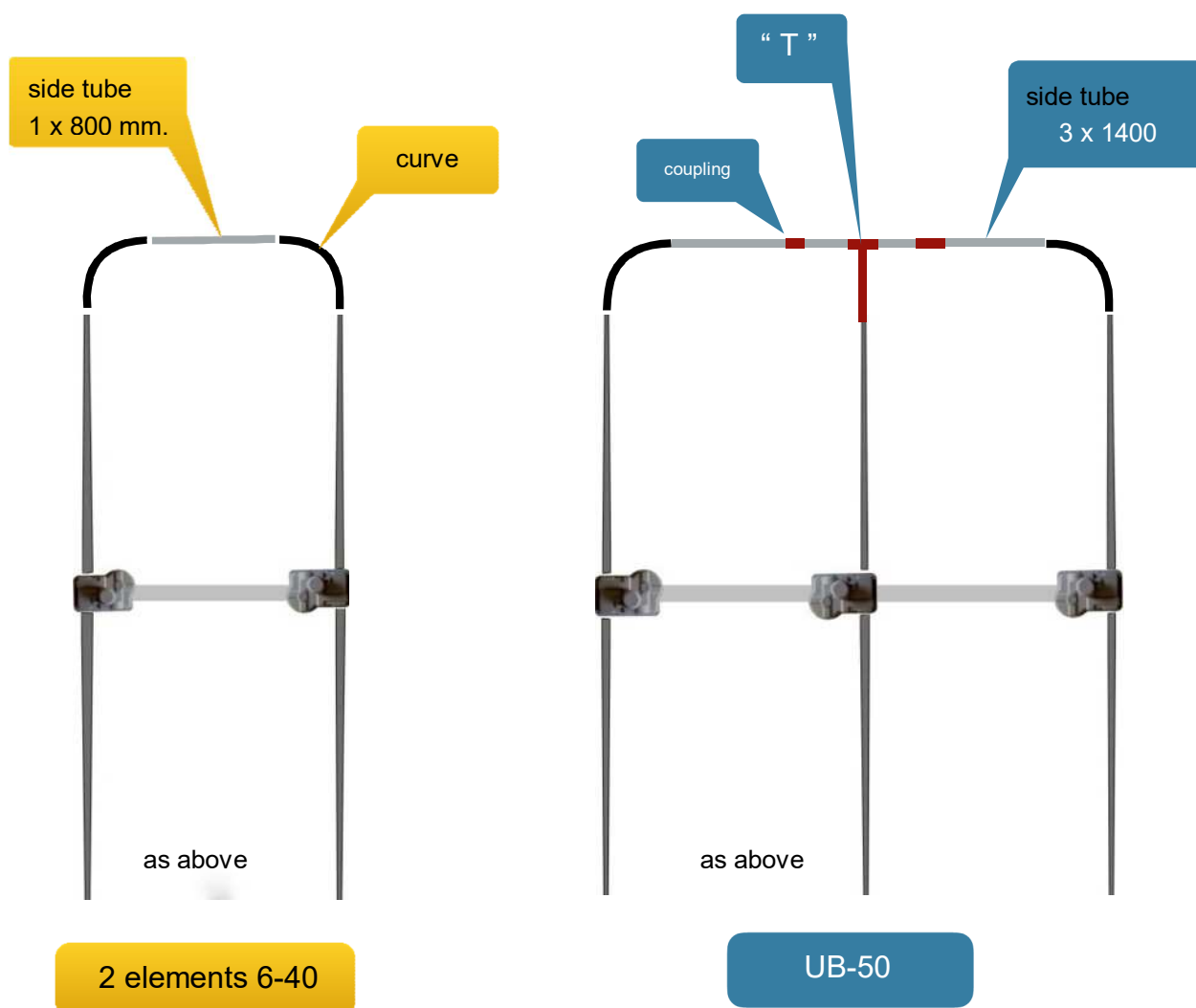


Fig.4

**NOTE:**  
The procedures relating to the installation of guide tubes are common to all models with folded elements.

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

## CURVES ASSEMBLY AND SIDE TUBES



**Only after inserting all the elements to the motor units you can install the curves and the lateral elements.**

For the side elements, glass fiber tubes of diameter 20mm are employed.

The 6-40 2 elements uses a single tube of 800 mm between a curve and the other.

The UB-50 employs three pipes of 1,400 mm, joined together by two fiber joints for a total length of 4200 mm.

In both cases, all the curves and tubes joints are fixed by means of thermo-tightening sheaths with high mechanical resistance with internal adhesive, which guarantee solid, permanent and waterproof junctions

On the UB50 a "T" mechanically connects the end of the central element to the side elements, in this way the weight of the entire lateral element will be distributed on all three elements.

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## 2 ELEMENTS YAGI 6-40

To apply the thermo shrinking a heat gun is needed (1500-2000W)

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 all 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 sheaths, check that the side section is parallel to the boom, to avoid typical candy shape.

Move the sleeves exactly to the center of the splice and heat as described above. (Fig.2)

**NOTE:** Clean the joint surfaces of the tubes and curves before applying the sheath.

Avoid any twisting and movement of the joint until it is completely cool

The curves have drain holes, make sure they are facing down (picture 3)



Fig.1



Fig.2



Fig.3

## UB-50 YAGI

The procedures of the curves junctions are identical to the elements 2, only difference is the length of the side element that is longer and is formed by three segments, in addition to a T central support Fig.4



Before joining the three elements with joints you must insert the "T" shaped support.

Slide the T inside the element that will be placed at the center. There is no need to fix it, it will align to the central element of the antenna at the end of assembly.





Combine the 1400 mm pipes placing the 10 cm small tubes exactly at half junction (fig.4-5).  
 Slide the sleeves on joints and heat up to the correct temperature (Figure 6)  
 Drill a small 2-3 mm hole on the same axis in the center in both junctions (fig.7)

**NOTE:** It's important to check that the holes are facing down before heating conduits that hold whole side element to the curves



Fig.4



Fig.5

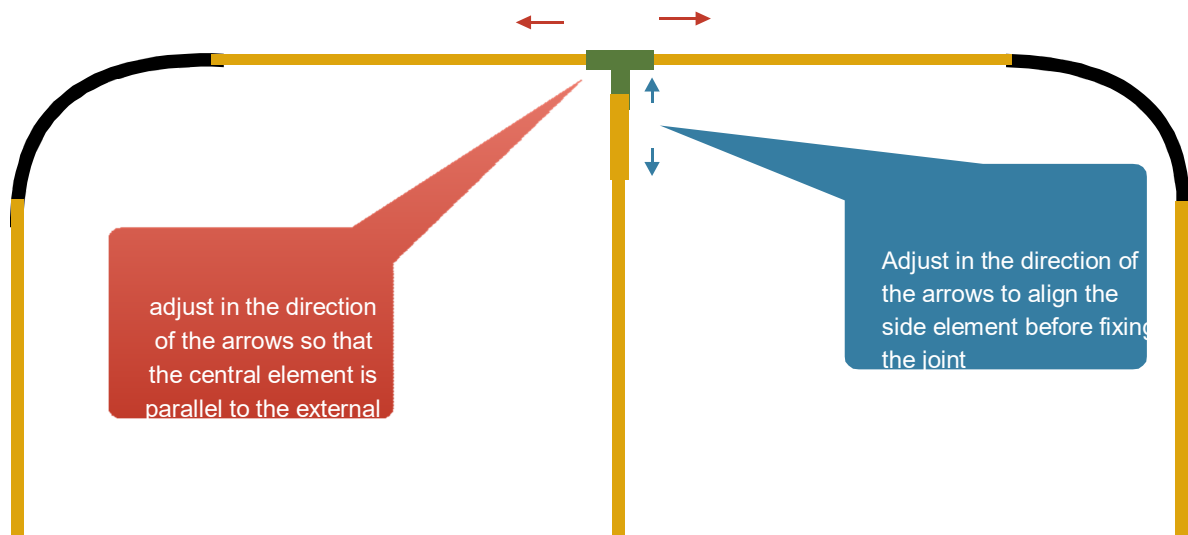


Fig.6



Fig.7

### FIXING / ADJUSTMENT OF "T" SUPPORT



Insert the T shaped tube to the end of the antenna central element.  
 The tube has sufficient length to let the element slide inside, this allows a telescopic adjustment in the direction of the arrows which is useful to set the correct position of the T, so that the whole side panel stays perfectly in line (only aesthetic factor). Any alignment which is not perfect will not compromise in any way antenna operation.  
 Once the exact spot is found, apply the heat shrink sleeve to lock the T-tube to the end of the telescopic element.  
 Move laterally the T inserted into the side panel in the sense of **<arrows>** to adjust parallelism between the antenna elements. It is not necessary to lock the T element, you can also leave it free to slide, so it will always find its natural position.

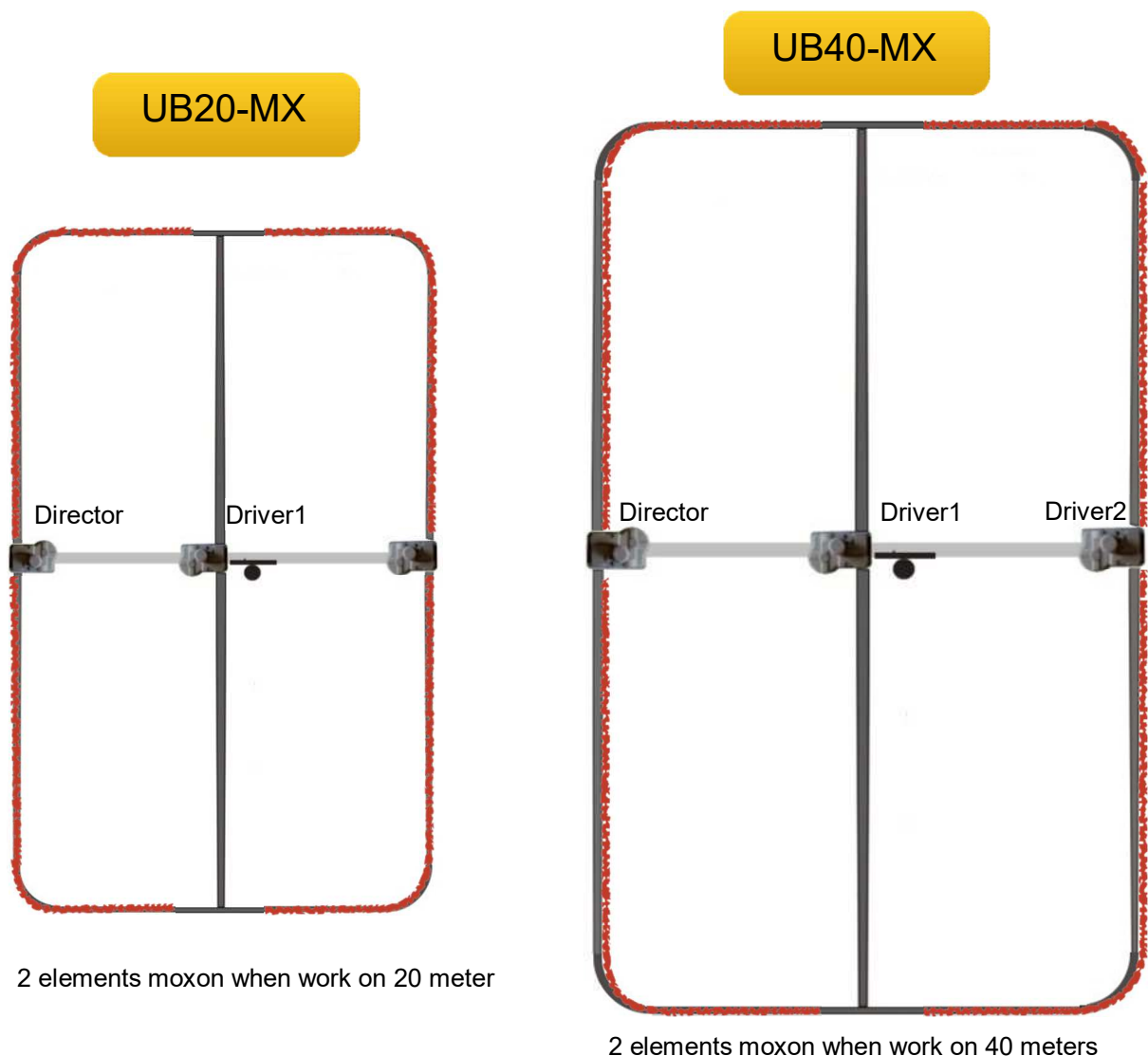
# UB20-MX / UB40-MX

The models UB20 and UB40 differ from UB50 MX in size of the elements and boom, and how they work in a configuration 2 elements moxon on the lower frequency.

With regard to the assembly instructions of the curves and side elements, they are absolutely identical to those of UB50 described in this manual.

On these two models the PVC guide tubes will be installed on both the external antenna elements.

The figures show the copper tape path that allows the two antennas to act as a 2 elements moxon configuration on the lowest frequency at which the model works.



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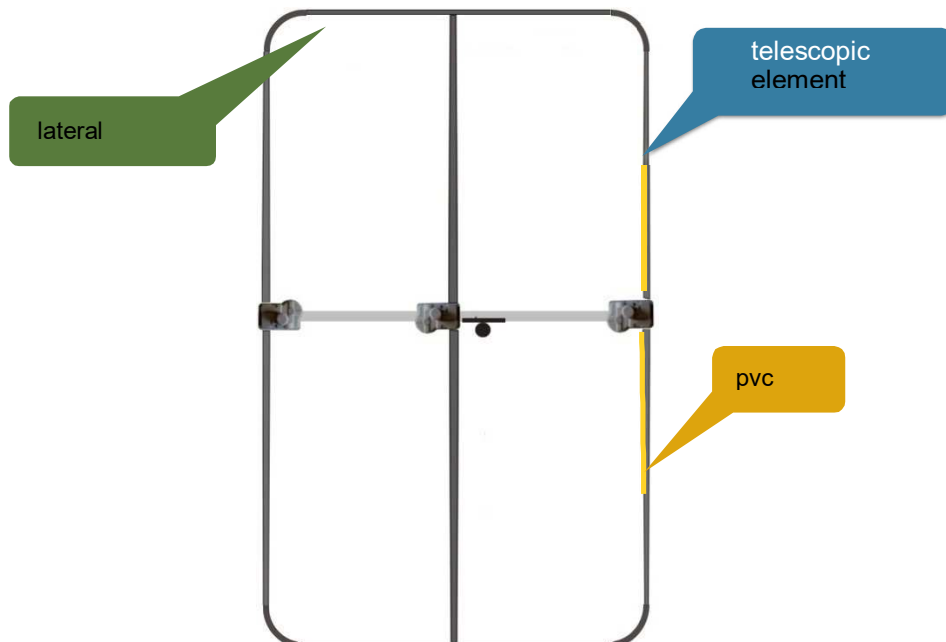
## TELESCOPIC ELEMENTS

MODEL	LENGTH TELESCOPIC ELEMENTS
2 EL. 6-40	5,4 m.
UB20-MX	3,5 m.
UB40MX	7,4 m.
UB-50	5,4 m.

## SIDE PIPES / GUIDE TUBES

MODEL	LATERAL TUBES LENGTH	PVC TUBES LENGTH
2 EL. 6-40	1 x 0,8 m.	2 x 1,5 = 3 m.
UB20-MX	2 x 1,15 = 2,3 m.	1 x 1,5 m
UB40-MX	3 x 1,5 = 4,5 m.	2 x 1,5 = 3 m.
UB-50	3 x 1,4 = 4,2 m.	2 x 1,5 = 3 m.

**NOTE:** The quantities shown in the table are for one antenna side only (page 5).



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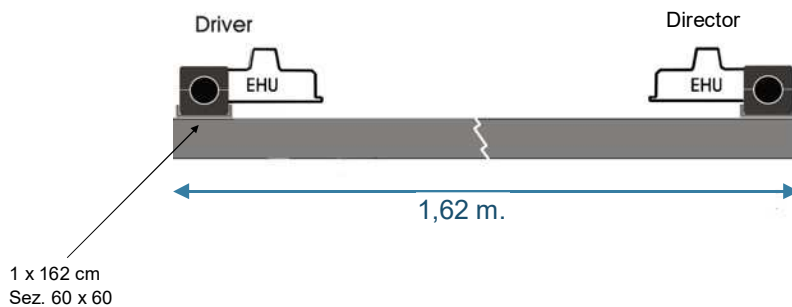
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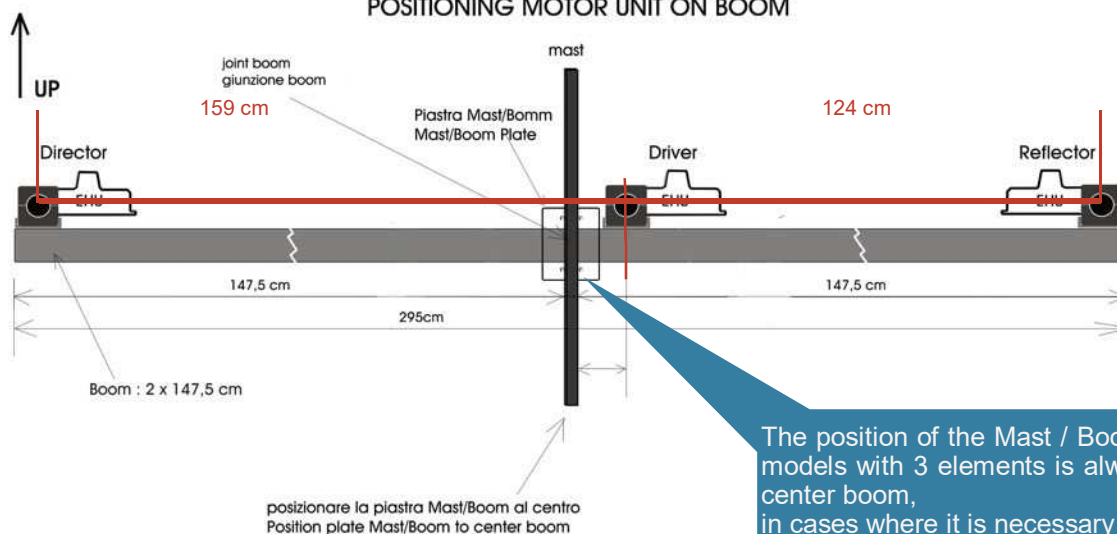
# ANTENNAS DIAGRAM

## 2 ELEMENTI 6-40



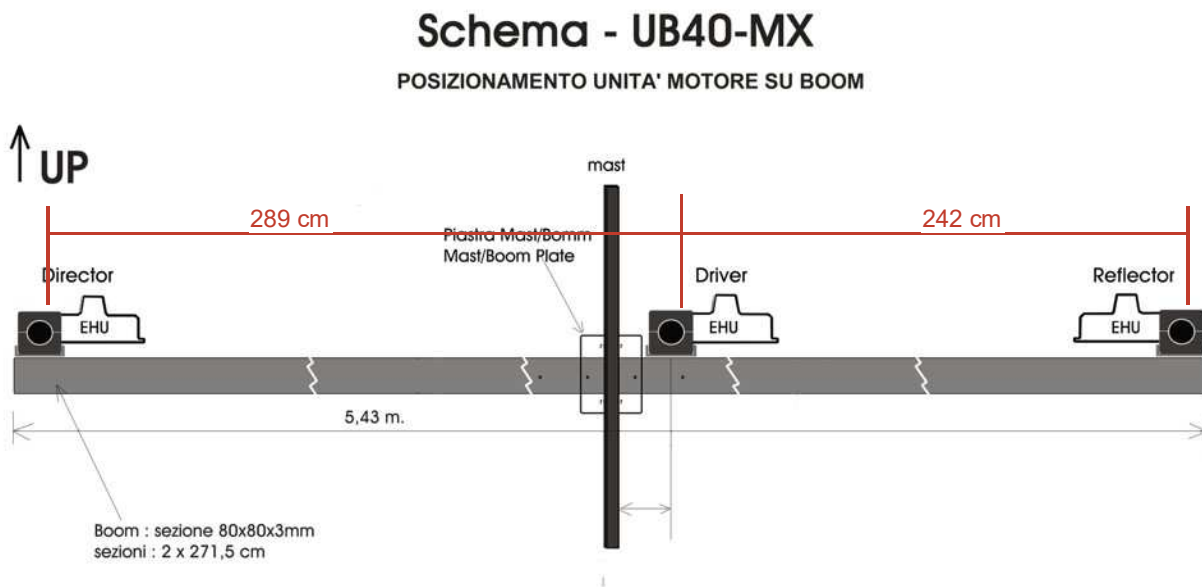
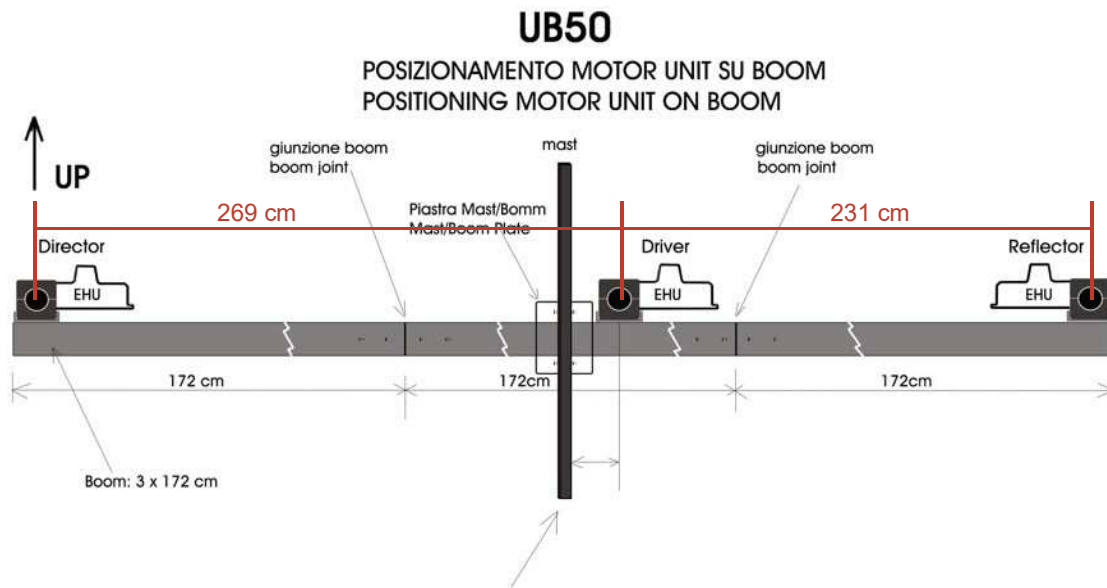
## UB20-MX Diagram

POSIZIONAMENTO MOTOR UNIT SU BOOM  
POSITIONING MOTOR UNIT ON BOOM



The position of the Mast / Boom plate in models with 3 elements is always at the center boom, in cases where it is necessary you can move it towards the director. This will provide more space between the central element and Mast

Description on page 6 of the Standard manual



Note: UB20 - UB50 - UB40 are models with double driver, download the manual "Switch"

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