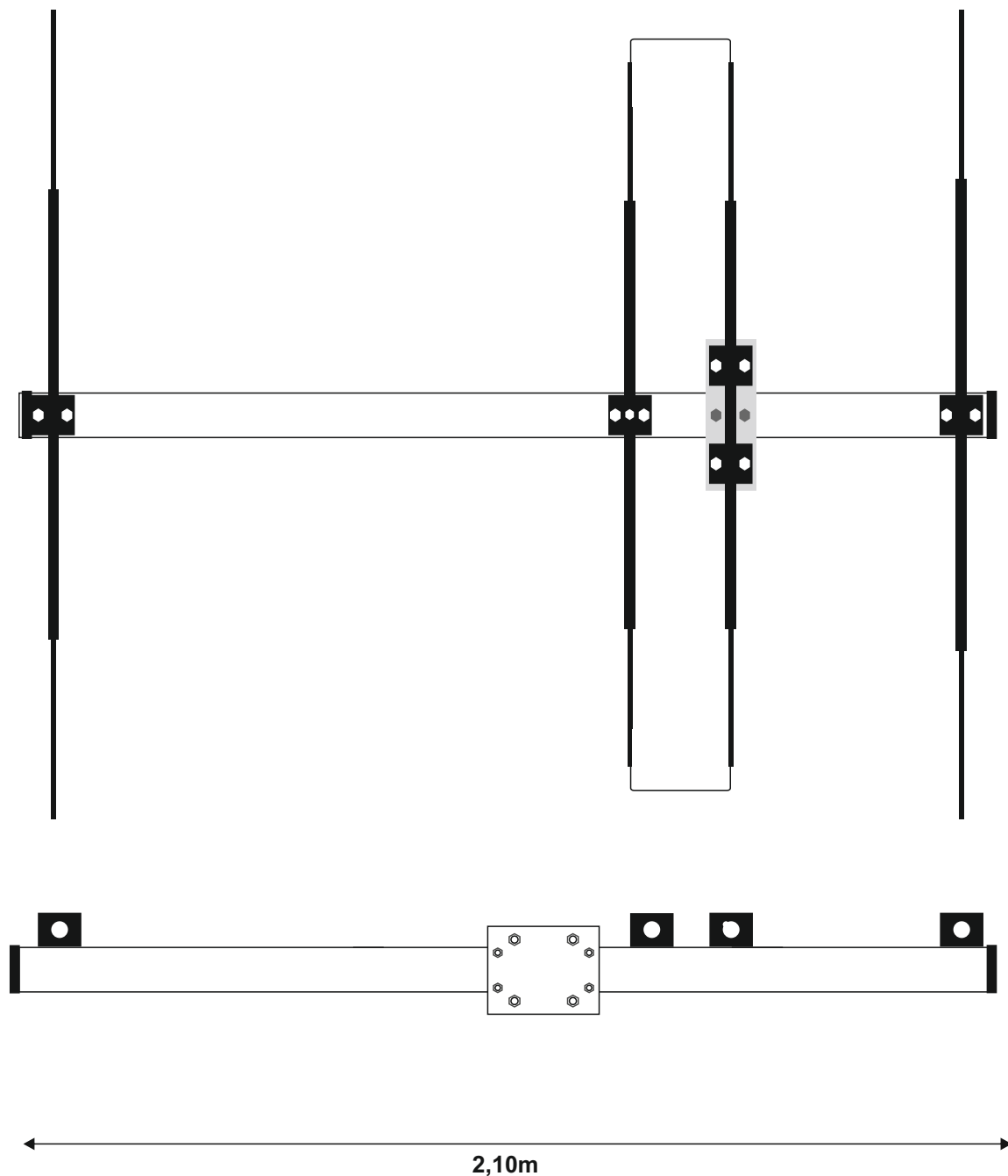


3 Element 50Mhz LFA-3

High Performance low noise Yagi

Model: 3LFA50-3



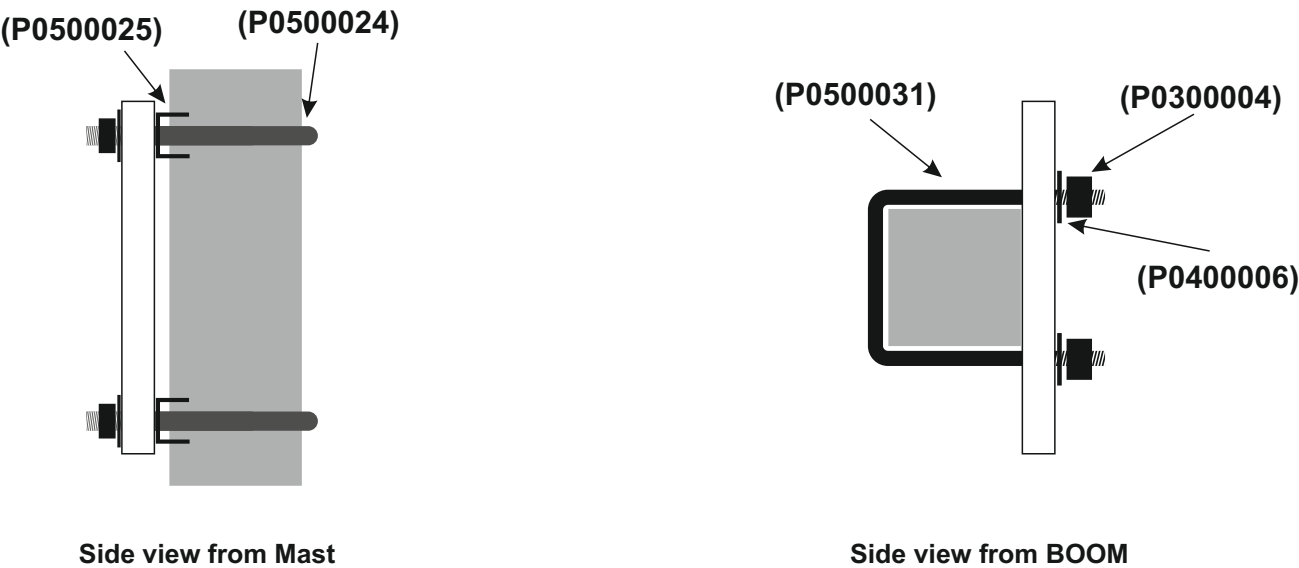
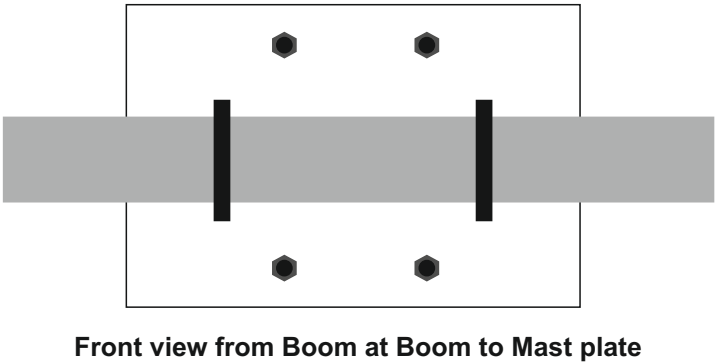
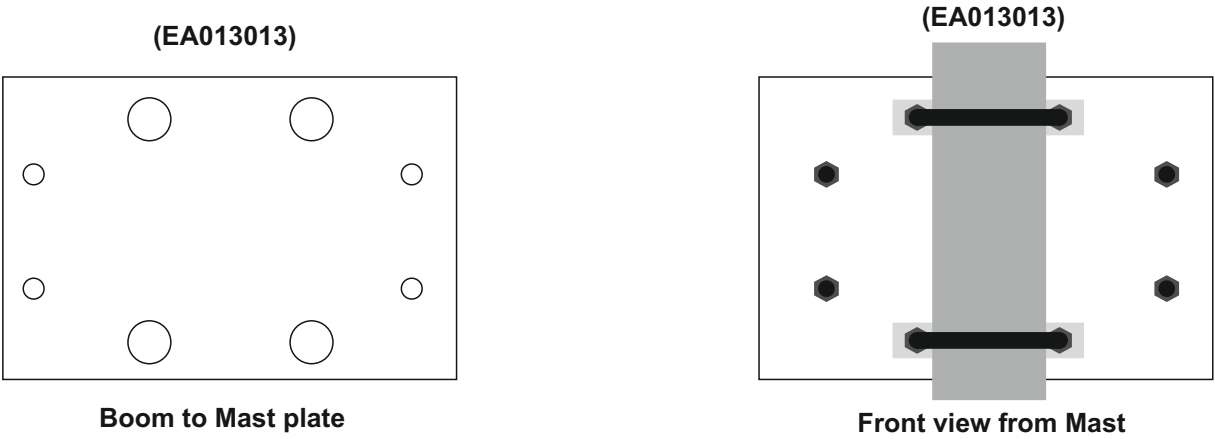
Not to Scale



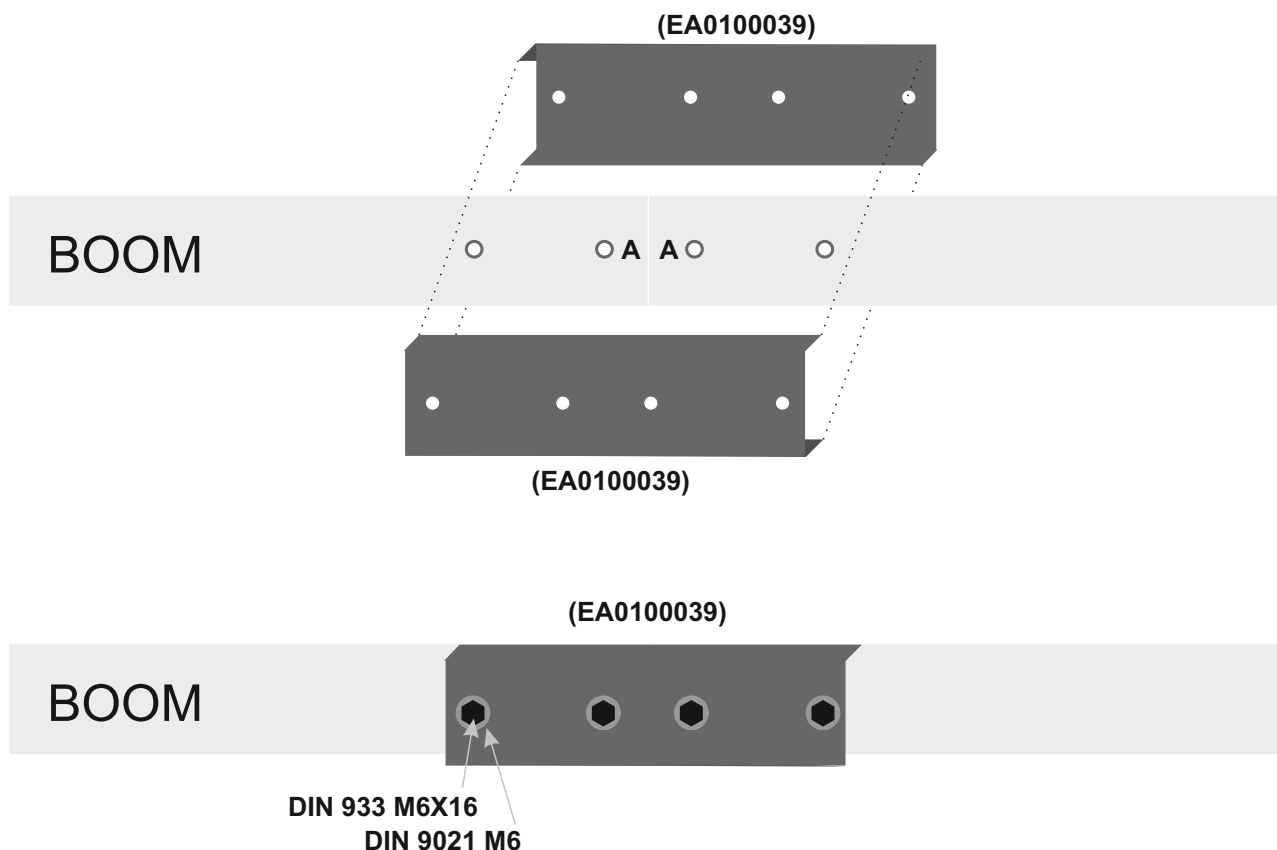
Boom to Mast Plate Assembly

The Boom to Mast plate (EA013013 100X100X6mm) consists of a rectangular plate with 8 holes; 4 x M8 diameter holes for the round U-bolts that clamp to the mast and 4 smaller M6 holes for mounting square U-bolts that secure the boom itself to the boom to mast plate.

Washers and Nylon nuts are also supplied along with saddles to ensure the boom to mast plate does not shift on the mast. Follow the assembly diagrams below:



The boom sections (square aluminium tube) are supplied in sizes to allow for easy global shipment and these sections need to be joined together in the correct order. After checking all the required boom sections are available as shown on the parts list, locate the pieces of boom with a corresponding number on them. For example, there will be 2 pieces with the letter 'A' at one end, these two pieces and end sections should be joined together. On longer booms, there will be two sections with 'B' and 'C' and so on.

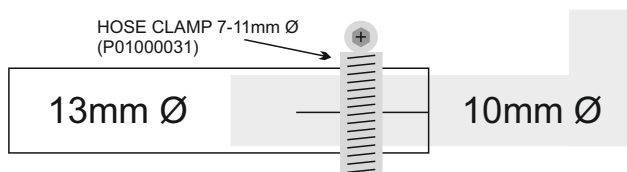
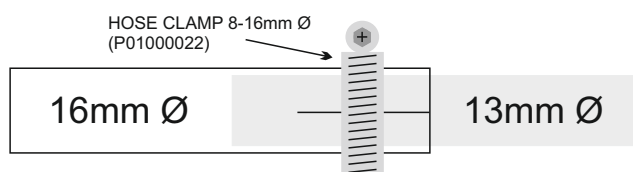


Locate the U-shaped plates (**EA010039**) of which two are required per boom join, one either side of the boom and insert fixing screws **DIN 933 M6X16** along with washers **DIN 9021 M6**. It is recommended that all 4 bolts are tightened firmly before the boom is lifted or any elements placed upon it.

Stainless Steel - Best practice

InnovAntennas products use all Stainless Steel hardware (marine grade A4/316). This is a very strong, high quality material but when fastening it is possible galling (locking) to occur if the thread are not lubricated. It is therefore good practice to oil or grease threaded components before completing their fitment.

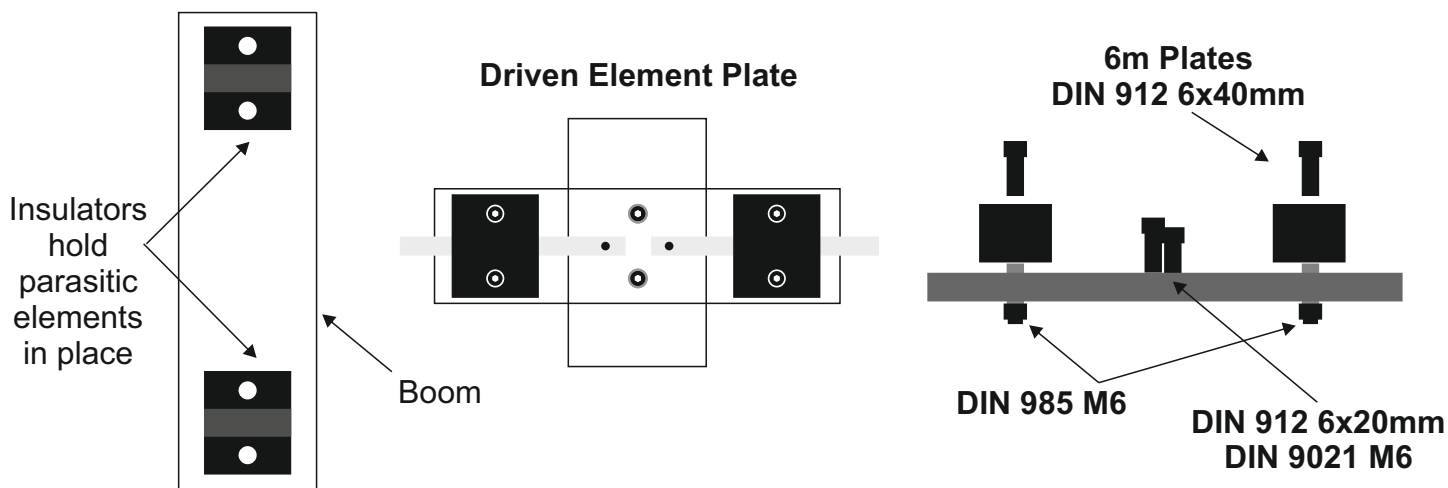
The driven element loop ends are fixed in place with a hose clamp 8-16mm (P0100022) at each corner of the 13 to 10mm diameter tubes. 7-11mm (P0100031) hose clamps hold the loop end in place and allow for adjustment (SWR).



Measurements on the drawing on page 2 are exposed lengths for each tube. The element sections total length will be longer than this to allow for overlap. For antennas that have tapered elements, it is advisable to insert the centre section into the white insulator clamp and tighten both to the boom before inserting the tips, measuring and finalising each elements respective length.

The driven element section of the loop (closest to the reflector) has a small plate with two white insulators, one either side of the feedpoint. 2 M6 bolts DIN 912 6 x 20mm hold this plate in place. More details of the feed point arrangement are shown on page 6.

It is important NOT to over-tighten the insulator blocks. They need to be tight enough that neither they nor the element moves. They should not be tightened down further, this may reduce the life length of the clamp.



Grease or oil all stainless steel parts before assembly to ensure reliable fitment and long-term survivability of the antenna and its components. InnovAntennas ConductAseal and RubbAseal are recommended when installing and are available via the InnovAntennas website.

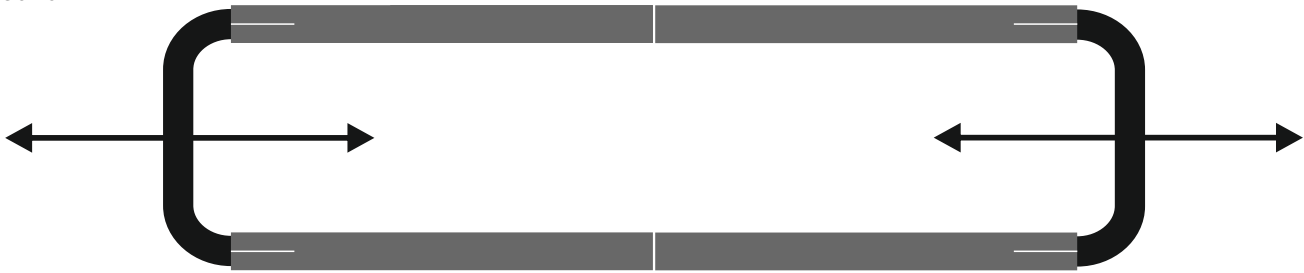
www.innovAntennas.com

Adjusting SWR

Once you have built your antenna and it is in position on your mast or test mast, you may find you need to make some small adjustments to the loop in order to get the best SWR. Move the loop ends in and out a few mm at a time until the best result is seen. At this point the loop hose clamps can be fully tightened.

Important notes on tuning

If the antenna is too close to ground when tuning, you may find the SWR alters once installed in its final position. In order to elevate this, you should ensure that in the test position the Yagi is at least one $\frac{1}{4}$ wavelength or one boom length (whichever is the greater distance) above ground. Additionally, the antenna should be pointed to a clear horizon with no trees or buildings close by. If this is not something you can achieve, then remove one of the U-bolts from the boom to mast plate in order the antenna can point slightly upward to clear sky. An angle of at least 20 degrees will give the same readings as would be seen if the antenna was installed several wavelengths above ground.

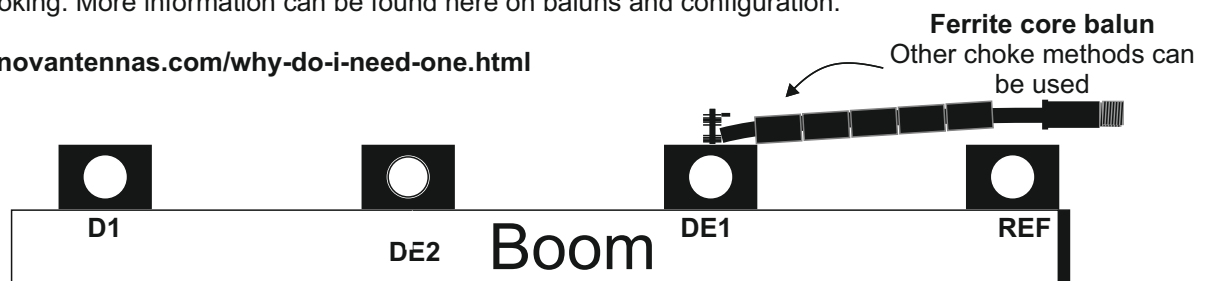


Balun - needed or not?

The LFA Yagi is a balanced antenna. Coax cable is an unbalanced feed line. If a balanced antenna is fed with unbalanced feeder, the coax can radiate as well as the antenna and this can have disastrous consequences on the performance of a Yagi that might not otherwise be seen on antennas such as verticals and dipoles. Therefore, it is important to install a BALANCED to UNBALANCED transformer (1:1 balun) or choke at the feed point.

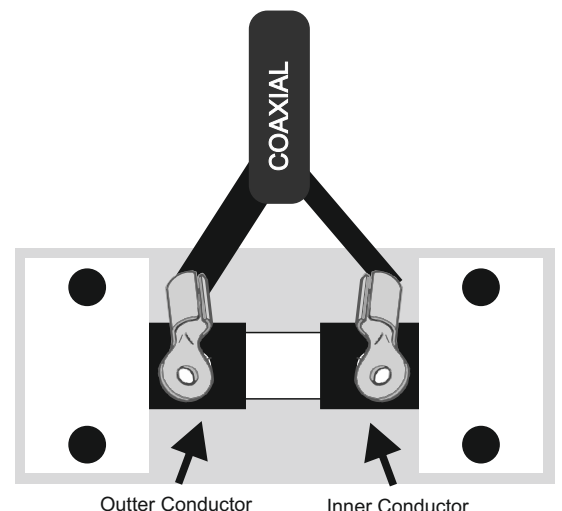
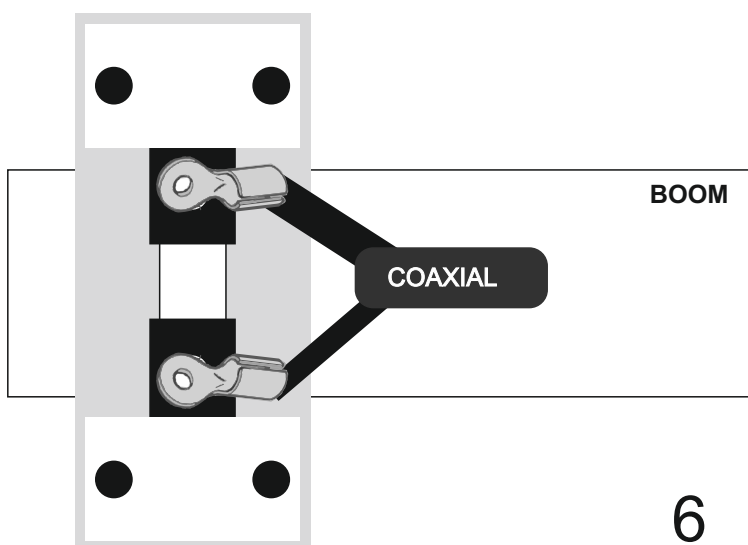
A 1:1 balun is one which connects 50Ohm coax cable to a 50Ohm antenna and prevents these common mode currents radiating back long the coax line. While it is possible to make a very simple choke from a coil of coax at the feed point of the antenna, any such arrangement should be confirmed at working with an antenna analyser. Often, good quality coax has a sleeve thickness too wide to provide enough capacitance between the turns of any coax coils to produce the desired choking. More information can be found here on baluns and configuration:

<http://www.innovantennas.com/why-do-i-need-one.html>



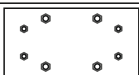
Any installed 1:1 balun or common mode choke must be as close to the feed point as possible. Ensure 'tails' (connection between coax cable and feedpoint are as short as can be.

For any help and support, please Email us at support@innovantennas.com

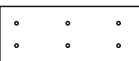


PACKING LIST

BAG #1

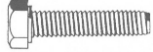
PART #	PART IMAGE	DESCRIPTION	SIZES	QUANTITY
EA013013		Boom to Mast plate	200 x 100 x 6mm	1
P0500001		2" U-Blot. Includes nuts and washers	M8	2
P0500002		2" Tube Saddle Clamp		2
P0500031		Square 30mm Clamp		2
P0400006		DIN 9021	M6	4
P0300004		DIN 934	M6	4
P1300001		Allen Key 5	Various Allen head bolts	1
P1300003		M10 Spanner		1

BAG #2

PART #	PART IMAGE	DESCRIPTION	SIZES	QUANTITY
INNOV100X6		De1 Elements plates	Dipole center plate	1
Q0200089		Allen DIN 912 bolt	20x6mm	2
P0400006		DIN 9021	M6	2
EAHYP016		16mm Ø Insulator blocks	Element insulators/holders	4
EAHYP016A		DE2 16mm Ø ALUMINIUM	Element insulator	1
Q0200003		Allen DIN 912 bolt	40x6mm	10
P0300007		DIN 985 NUT	For element tips and inner loop	4
P0100022		8-16mm Hose clamp		12

PACKING LIST

BAG #3

PART #	PART IMAGE	DESCRIPTION	SIZES	QUANTITY
EA010039		Boom joining sleeve	200x35mm	2
P0200024		Allen DIN 933 bolt	16x6mm	8
P0400006		DIN 9021 M6 washer		8

LARGER BOXED ITEMS

PART #	PART IMAGE	DESCRIPTION	SIZES	QUANTITY
3EL2.1A A-A		Boom section	1126mm x 30mm	1
3EL2.1B A-B		Boom section	1006mm x 30mm	1
		Loop ends driven element	463mm x 11cm x 10mm Ø	2
		Centre element sections	998mm x 16mm Ø	2
		Centre of DE2 (loop)	998mm x 16mm Ø	1
		Centre of DE 1 (loop feed point)	998mm x 16mm Ø	1
DE1		DE1+DE2 loop mid sections	845mm x 13mm Ø	4
REF		Reflector element tips	1100mm x 13mm Ø	2
D1		Director element tips	939mm x 13mm Ø	2