

Dual Beam Pro Assembly Instructions

Dual Beam Pro 400 / 1000 Multi-Band HF Antenna



Assembly Instructions

Pro Antennas © 2024

Thank you for purchasing this unique antenna product. We hope that it will provide you with many hours of operation and pleasure for years to come.

Please take a little time to carefully follow the instructions and study the pictures to help understand the correct positioning and alignment of the various components.

Contents

The packing tube should contain:

- 2 x 1 inch diameter alloy 2.5m main element sections complete with end caps and capacity hat securing bolts
- 2 x 3/8 inch diameter alloy 2.5m capacity hat elements
- 1 x GRP rod centre support insulator
- 3 x cable ties, 1 reusable stainless steel

The small box should contain:

- 1 x matching transformer with mounting block
- 2 x matching transformer connection leads
- 1 x galvanised mast head support clamp
- 4 x 35mm M6 bolts with serrated nuts
- 4 x capacity hat element end caps
- 1 x self amalgamating tape for sealing the cable connector

Tools required

10mm and 13mm spanners

Safety

GRP/aluminium splinters can cause skin irritation and protective gloves must be worn before handling.

Ensure you have a safe working area of at least 5m x 3m. Abide by the Work at Height Regulations for installation.

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Specification

The Dual Beam Pro is a non-resonant horizontal dipole antenna with capacity loading end elements. Aerospace alloy is used for the elements and the fasteners and clamps are galvanised for excellent corrosion resistance.

Overall span of main rotatable element	5.0m
Overall span of end elements	2.5m
Turning radius required	2.6m
Total weight including clamp and transformer	4.0kg
Support mast diameter range	32 - 50mm

Dual Beam Pro 400

Maximum peak envelope power 20m - 6m 400W

Maximum peak envelope power 40m & 30m 250W

Dual Beam Pro 1000

Maximum peak envelope power 20m - 6m 1000W

Maximum peak envelope power 40m & 30m 600W

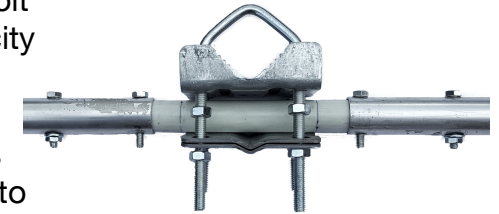
This antenna requires an ATU to match the impedance to 50 Ohms. For 40m and 30m operation, the ATU built into most modern HF transceivers is unlikely to have a sufficient matching range and an external ATU will be required.

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Assembly

1. Insert the GRP rod through the section of the mast head support clamp but do not tighten the clamp at this point.

2. Fit the main elements onto the GRP rod and align the bolt holes. Ensure that the capacity hat securing bolts are both facing upwards before inserting the 4 x 35mm bolts and fitting the serrated nuts to the 2 outermost bolts.



3. Fit the 2 connection leads to the matching transformer and offer up the assembly to the 2 innermost bolts. Fit the serrated nuts finger tight.

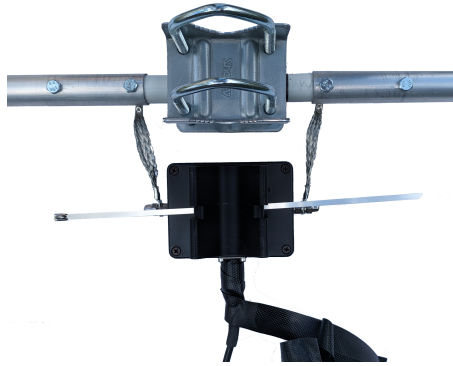
4. Slide a capacity hat element through the hole in the outer end of a main element section. Centralise the capacity hat element using the alignment marks and tighten the securing bolt by no more than 1/2 turn.



Fit the plastic end caps and repeat step 4 for the other capacity hat element.

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Connection



The feeder can now be fitted to the matching transformer with a PL259 connector. Seal the connector against moisture using the self amalgamating tape. Remove the backing layer and wrap the tape tightly from the socket to the plug.

Slide the cable tie through the slot between the mounting block and the transformer housing. The spare cable ties can be used for extra security or kept for future use.

Installation

Lift the antenna onto the support mast and tighten the cable tie(s) to secure the matching transformer to the mast.

Ensure that the mast head clamp is still central on the GRP rod and that the capacity hat elements are horizontally aligned before finger tightening the mast head clamp bolts.

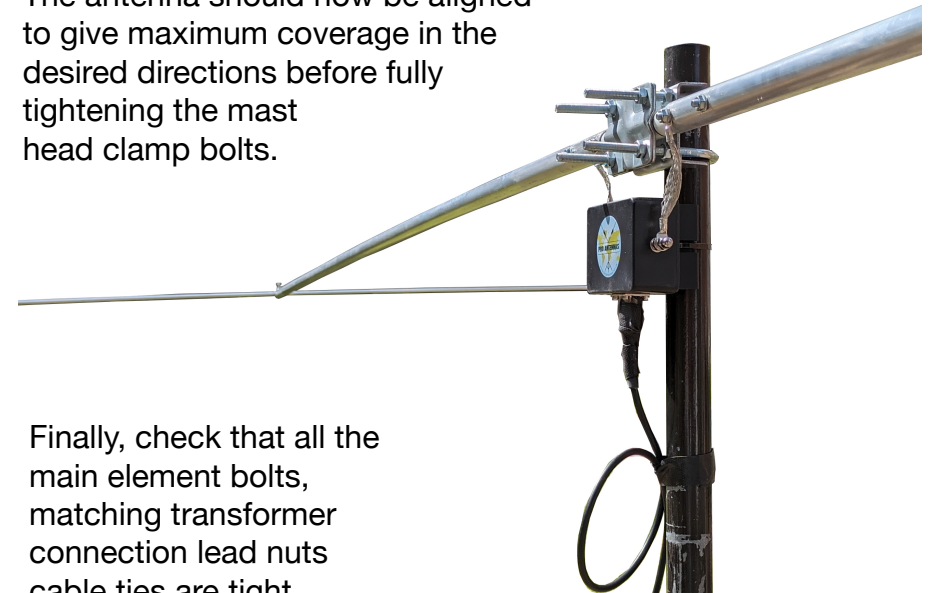


Form a small loop prior to taping the coax cable to the support mast using insulating tape. If you are using a rotator, ensure there is enough slack in the cable to allow the mast to rotate without restriction.

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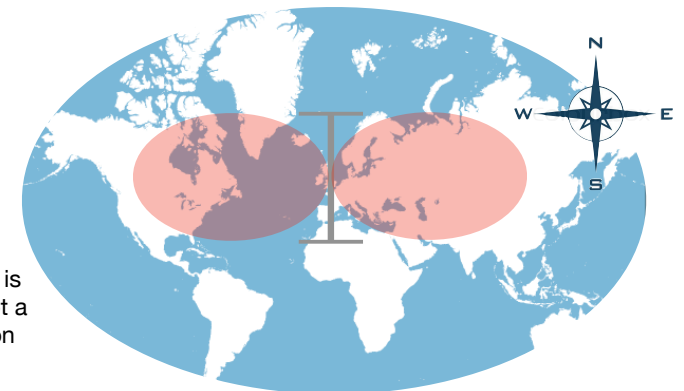
Alignment

The antenna should now be aligned to give maximum coverage in the desired directions before fully tightening the mast head clamp bolts.



Finally, check that all the main element bolts, matching transformer connection lead nuts cable ties are tight.

The Dual Beam Pro may be mounted on a mast rotator or pre-aligned in the preferred directions of coverage. The diagram below shows the antenna aligned to beam maximum energy East and West.



Note: this diagram is indicative and is not a plot of the radiation pattern