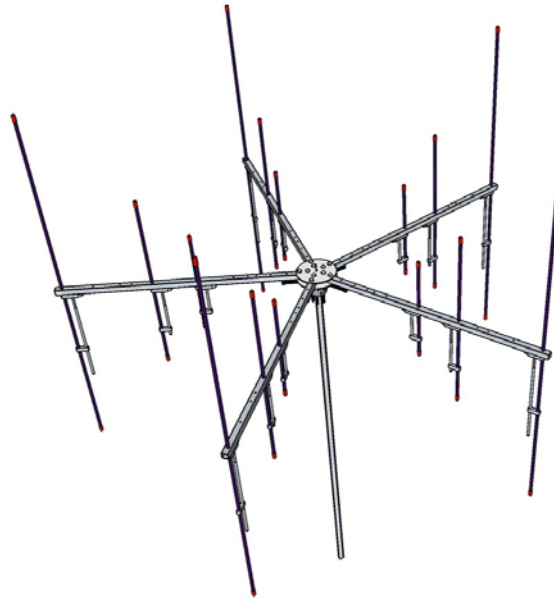


← Arrow Antenna →

1938 Wyott Drive Unit D3
Cheyenne, WY 82007

ArrowAntennas.com
Simply the Best

(307) 222-4712
info@arrowantennas.com



Kraken Antenna for Kraken SDR Radio

The Arrow II line of antennas has been engineered to provide maximum gain and efficiency in the smallest practical size & weight.

Aluminum **Arrow Shafts** are used for elements.

The gamma match is pre-assembled & pre-tuned. BNC connector only.

The five booms are 3/4" square (with round corners).

The Kraken SDR is available in two varieties:

- Large Array: Boom lengths of 31". 121 MHz and up. 55" mast.
- Small Array: Boom lengths of 20.5". 220 MHz and up. 36" mast.

One set of elements is used at a time on each boom.

Booms & elements all have plastic tips for safety.

Guarantee

No hassle refund

If you are not completely satisfied with any ARROW ANTENNA Product it can be returned for a FULL refund less shipping and handling within 90 DAYS of purchase date.

SIMPLY THE BEST

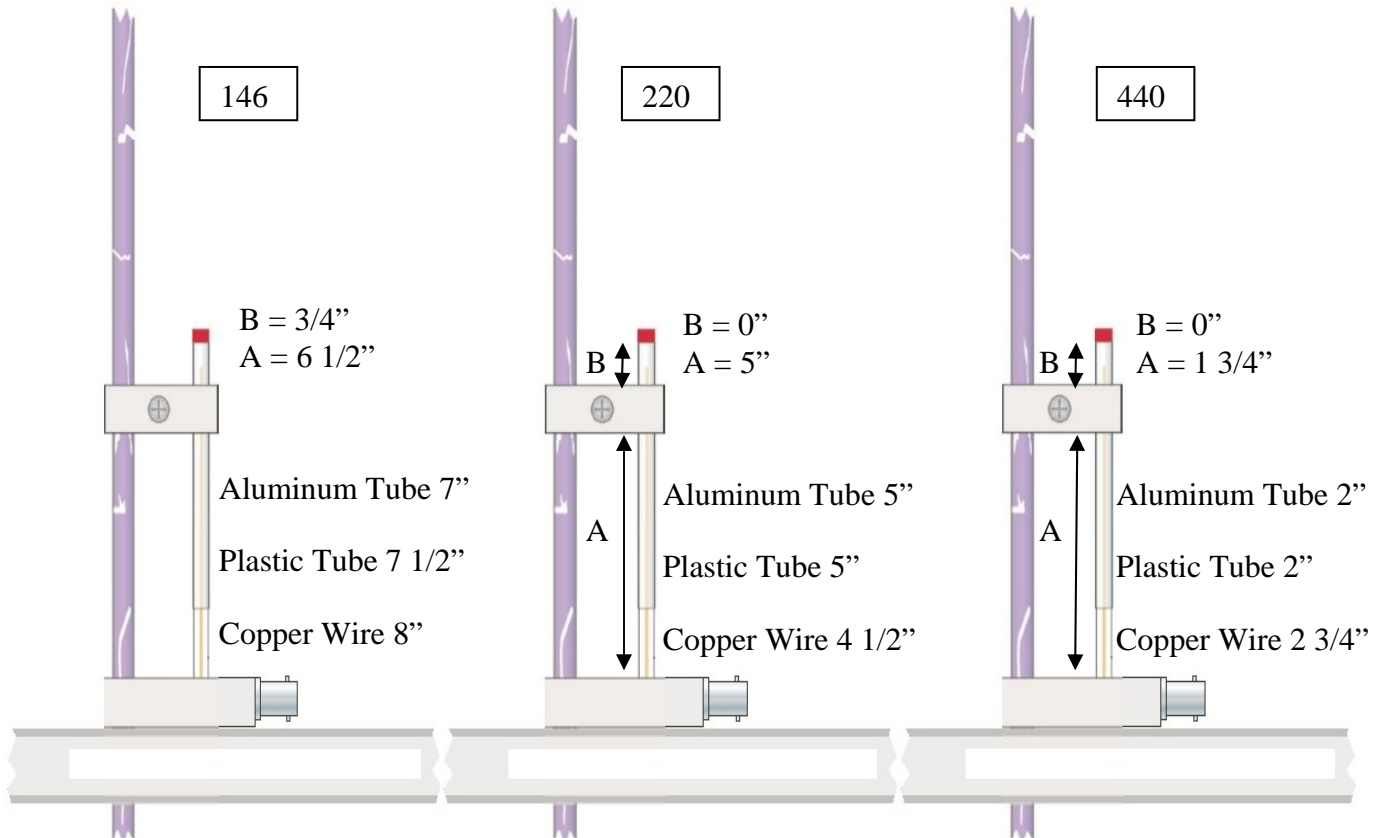
Model

Kraken SDR Antenna

All variants for Kraken SDR.

We don't invent antennas.
We simply build them better.

Assembly Instructions (For custom antennas, see last page of instructions for element dimensions.)



ASSEMBLY CHECKLIST FOR OUR SHIPPING DEPARTMENT.

Antenna Being Assembled: Large Array Small Array

- ___ 2 Mounting Plates (1 with 1" hole. 1 with 1/4" hole.)
- ___ 5 Booms 31.5" booms or 21.5" or custom length for custom array.
- ___ 1 Mast with mount Hole and Cable Retainer Hole 55" or 36".
- ___ 11 element holes per boom
- ___ Holes are clear
- ___ 2 Mounting holes
- ___ 6 End Caps
- ___ 1 Mounting Block with 2 mounting holes and 1 threaded hole
- ___ 11 Bolts 1/4-20 x 1-1/4"
- ___ 10 Nuts 1/4-20
- ___ 10 Lock Washers 1/4"
- ___ 1 Screw 8-32 x 2.5 inch
- ___ 2 Screws 8-32 x 3/4 inch
- ___ 1 Cable Retainer (2 plastic parts)
- ___ 3 Screws 8-32 x 1.75 inch

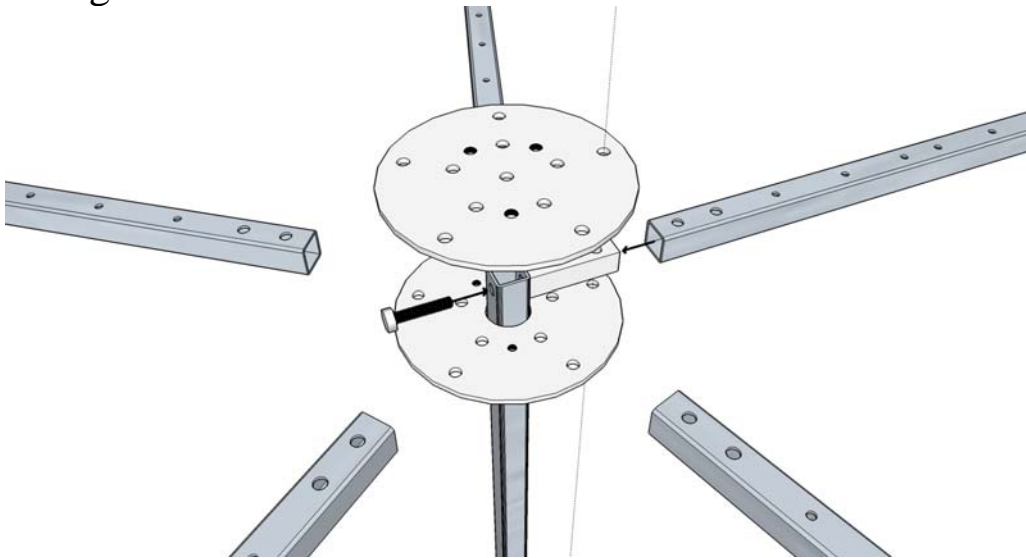
Mast and Booms Assembly

---Note that there are 3 holes in the top and bottom plate that must be aligned. They are black in the image below. One is not shown in the lower plate.

---Slide Bottom Plate with 1" hole over the mast.

---Thread a 1.25" bolt through the 1/4 inch hole at end of mast and into mounting block.

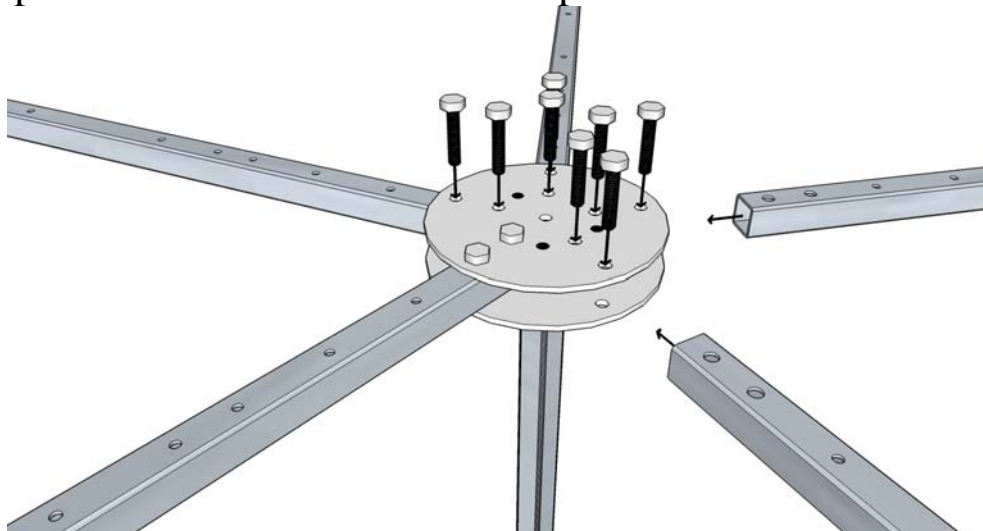
---DO NOT OVER-TIGHTEN. Don't squish the boom or strip out the aluminum. Slide a boom over the mounting block so that the boom's mounting holes line up with the mounting blocks holes.



---Use two 1-1/4 inch bolts, two lock washers, and two 1/4-20 nuts to sandwich the first boom and both plates to the mounting block. Leave these nuts loose.

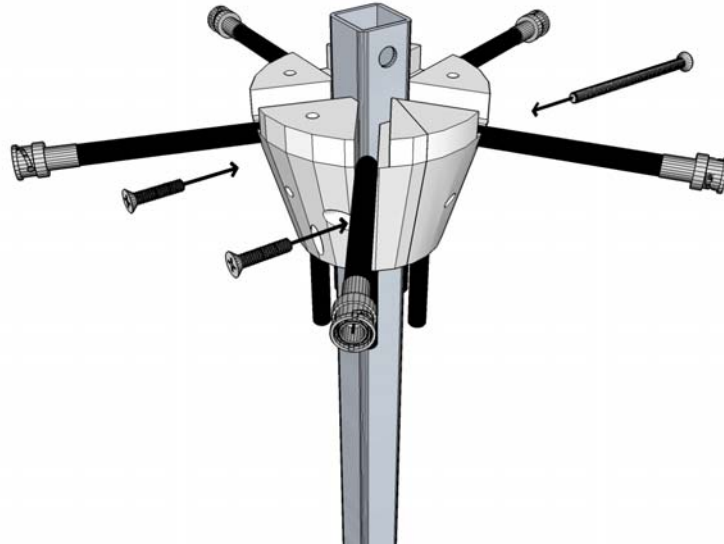
---Slide a boom between plates and affix it using two bolts, lock washers, and nuts. Keep the nuts loose until all the booms are in place. Then tighten them all. (Note: There will be no bolt in the center hole of the top plate.)

---Repeat the process until all 5 booms are in place.

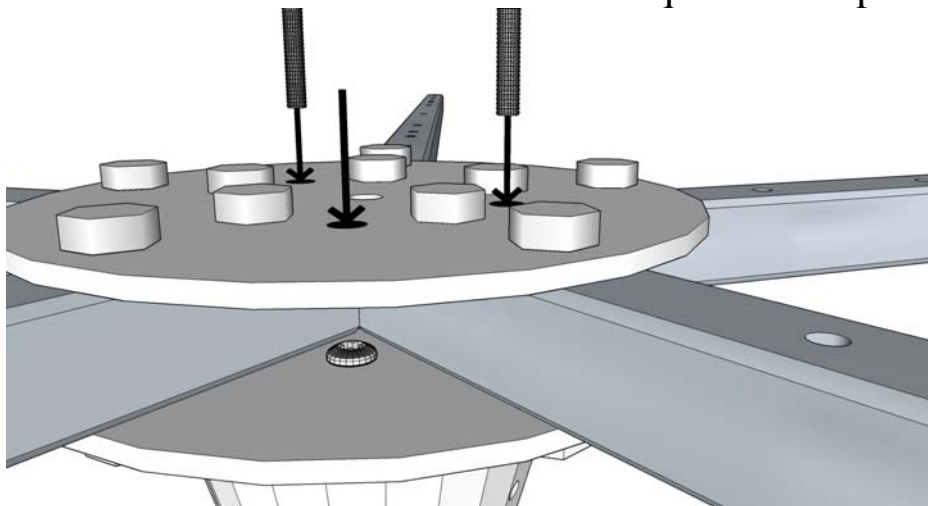


---Lay your 5 cables in the Plastic Cable Retainers and install the Plastic Cable Retainer and cables around the mast underneath the lower plate using the 8-32 x 2.5" and .75" screws provided with the cables resting in the rounded slots in the retainer. Make sure the BNC connectors for the antennas are **DO NOT OVER-TIGHTEN**. Too much torque will strip the plastic.

---The cables should sit loosely within the retainer to avoid damaging the cables.



---Use the 3 8-32 x 1.75" screws to secure the bottom plate to the top of the cable retainer. **DO NOT OVER-TIGHTEN**. Too much torque will strip the plastic.



---Place **ONE** set of elements in their appropriate spots and connect the cables to them. See the table below for which holes to use for a given frequency.

---Your antenna is now ready to use.

Hole Number	Inter-element spacing (wavelength)	Frequency (MHz)	Distance from end of Boom (in)		Radius (cm)
			Large Array	Small Array	
1 Outermost hole on large array	0.45	146	0.80	N/A	30.95
1	0.3745	121.5	0.80	N/A	30.95
3	0.35	146	7.68	N/A	24.07
4	0.33	146	9.06	N/A	22.69
5 (Outermost hole on small array)	0.45	223.5	11.54	1.04	20.21
6	0.45	435	16.93	6.43	14.82
7	0.35	406	21.36	10.86	10.39
8	0.33	435	23.09	12.59	8.66
9	0.35	600	24.13	13.63	7.62
10	0.35	900	25.89	15.39	5.86
11 Innermost hole	0.33	223.5	27.85	17.35	3.90

There are two aspects of the Kraken antenna to be considered: Element Spacing and Element Tuning.

Element Spacing must be less than 0.5 wavelengths. Greater spacing will give more than one directional result and be ambiguous. The reason 0.45 wavelengths is used instead of 0.5 is to allow for errors and still be under 0.5 wavelengths.

Element Tuning is less important since the antenna is being used for receive only. Elements don't have to be resonant at the desired frequency if strong signals are being received. If weak signals are being received, then resonance matters more. For example, the 440 MHz elements can be used at 900 MHz receive but will have a couple db of signal loss.

When the antenna is assembled, the elements interact and change the system's resonant frequency. For example when the 440 MHz elements are placed in their correct spots (hole 6 in the table above) they will resonate at about 417 MHz.

For more information about directional accuracy, see here:

https://github.com/krakenrf/krakensdr_docs/blob/main/antenna_array/Antenna_Array_Size_Calculator.xlsx?raw=true

Only one set of elements can be used on the antenna at a time or reflections will occur giving inaccurate results.