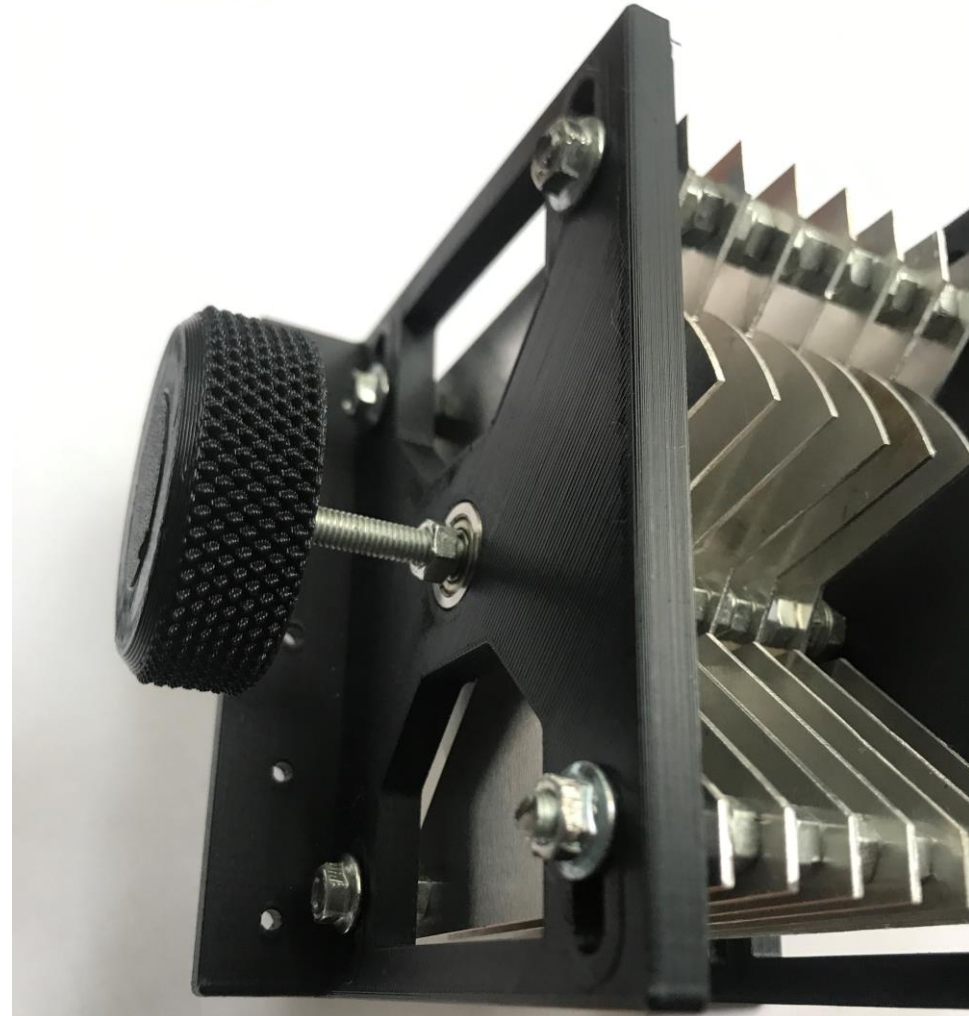
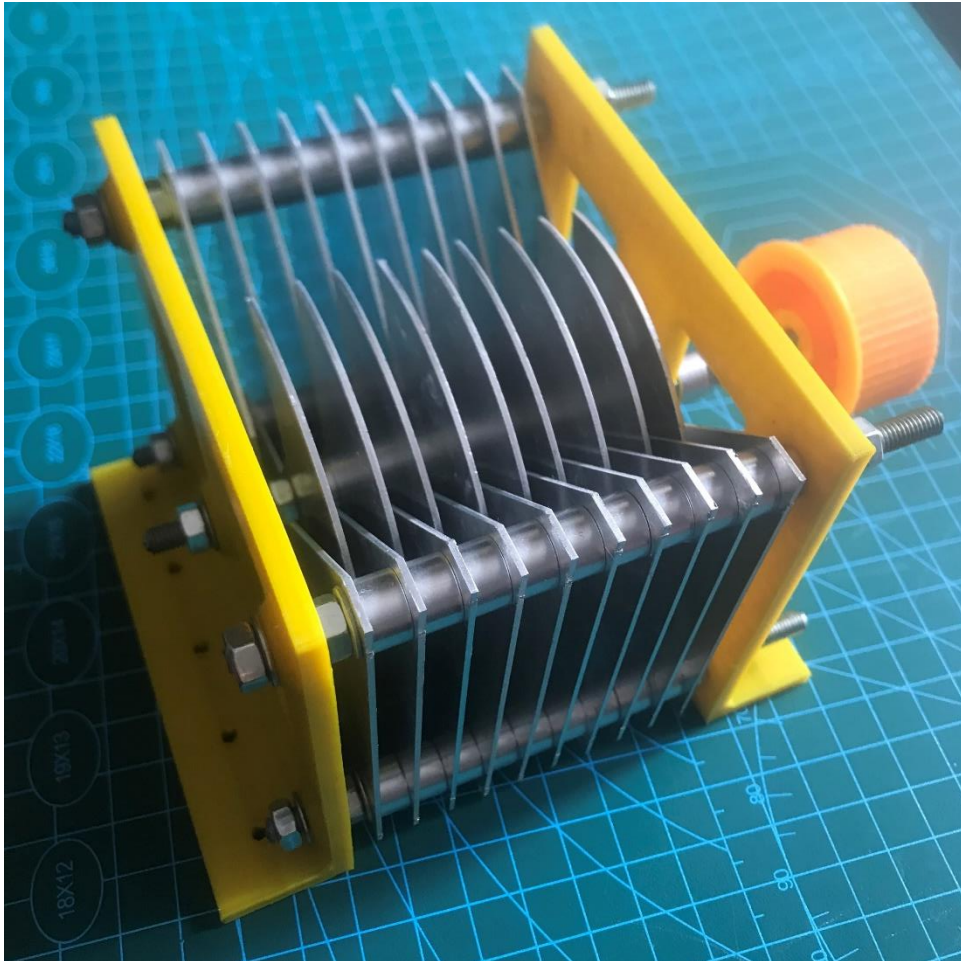
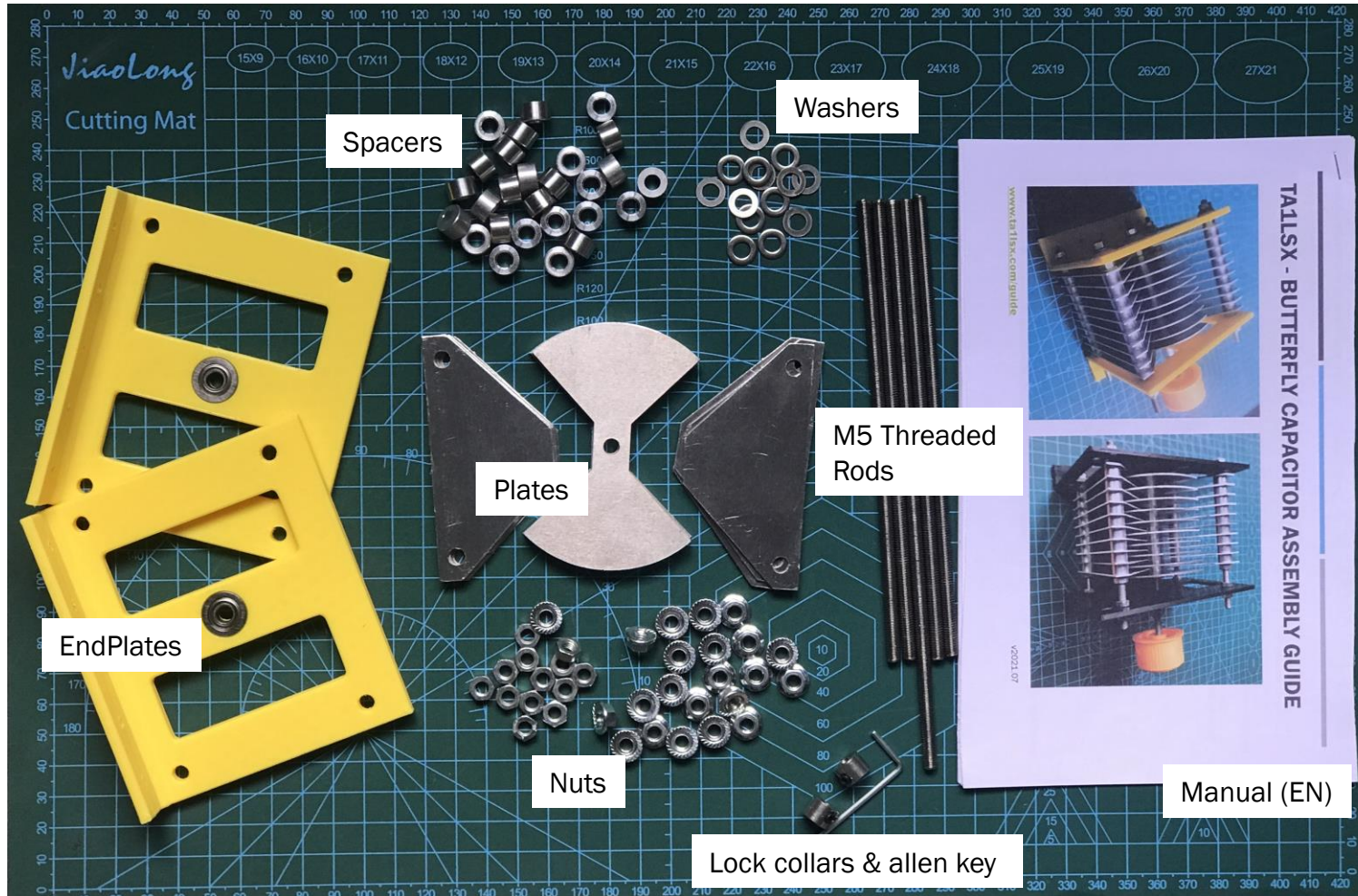


# BUTTERFLY CAPACITOR ASSEMBLY GUIDE



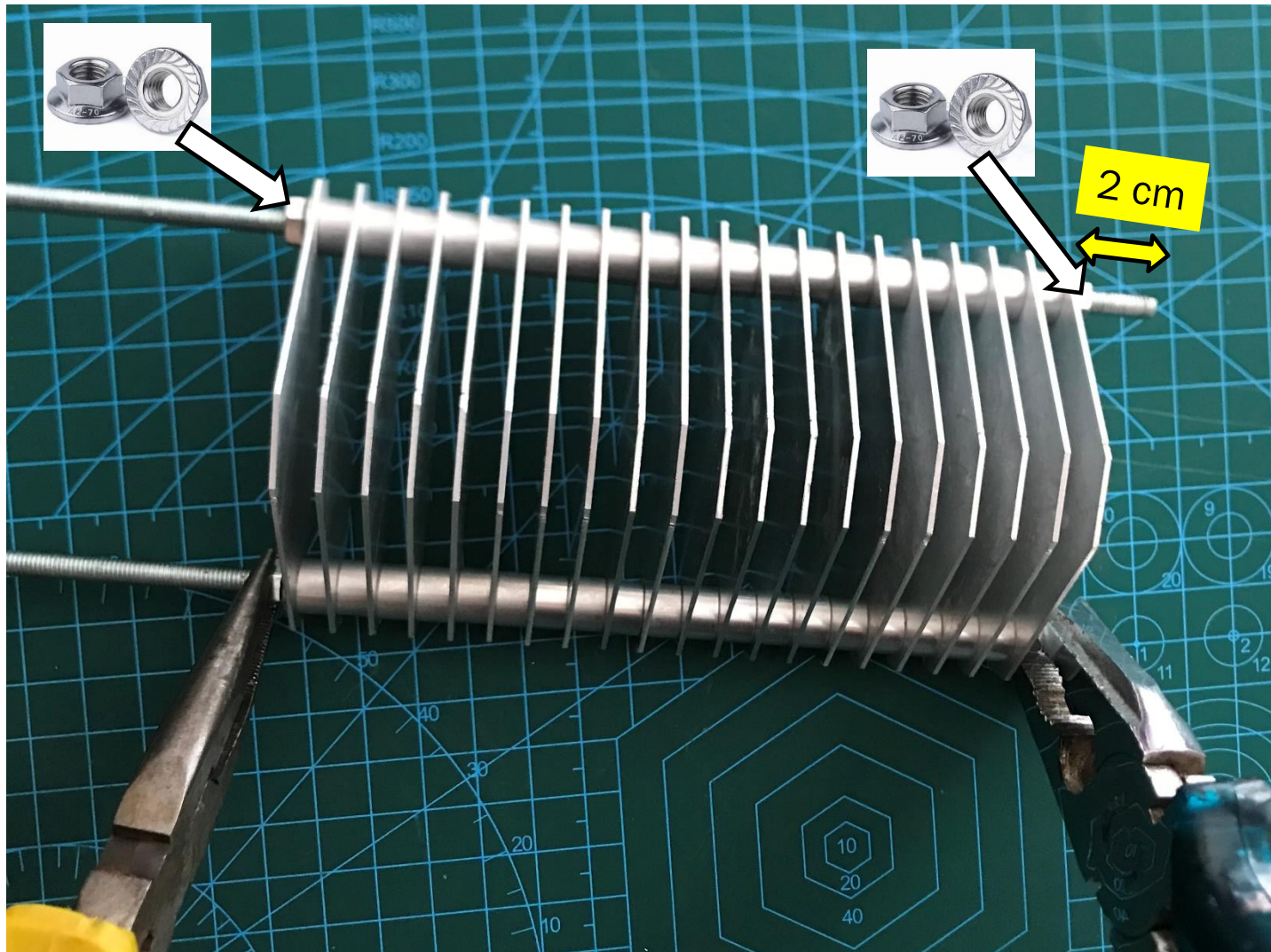
# KIT CONTENTS



- Butterfly Style Capacitor Plate Sets, Laser Cut, Thickness: 1 mm or 1.5 mm (Aluminum or Stainless)
- 3D Printed Endplates, a pair. (The new version is slightly different from the one shown in the picture.)
- Stainless rods - M5 type, full threaded (5 pcs)
- Aluminum spacers, 5mm or 6mm (quantity depends on plate sets – *a few more*)
- M5 Flanged Nuts\*
- Regular M5 Nuts and Washers\*
- Lock collars (2 pcs) & allen key (to fix center rod)
- Manual (English)

\* Spacers, nuts and washers will be shipped more than necessary. Knob is not included in the kit (optional).

# STEP-1



Take 2 stator rods and insert flanged nuts (or regular nut + washer) by leaving around 2 cm (0.8 inch) gap from the end of the rod.

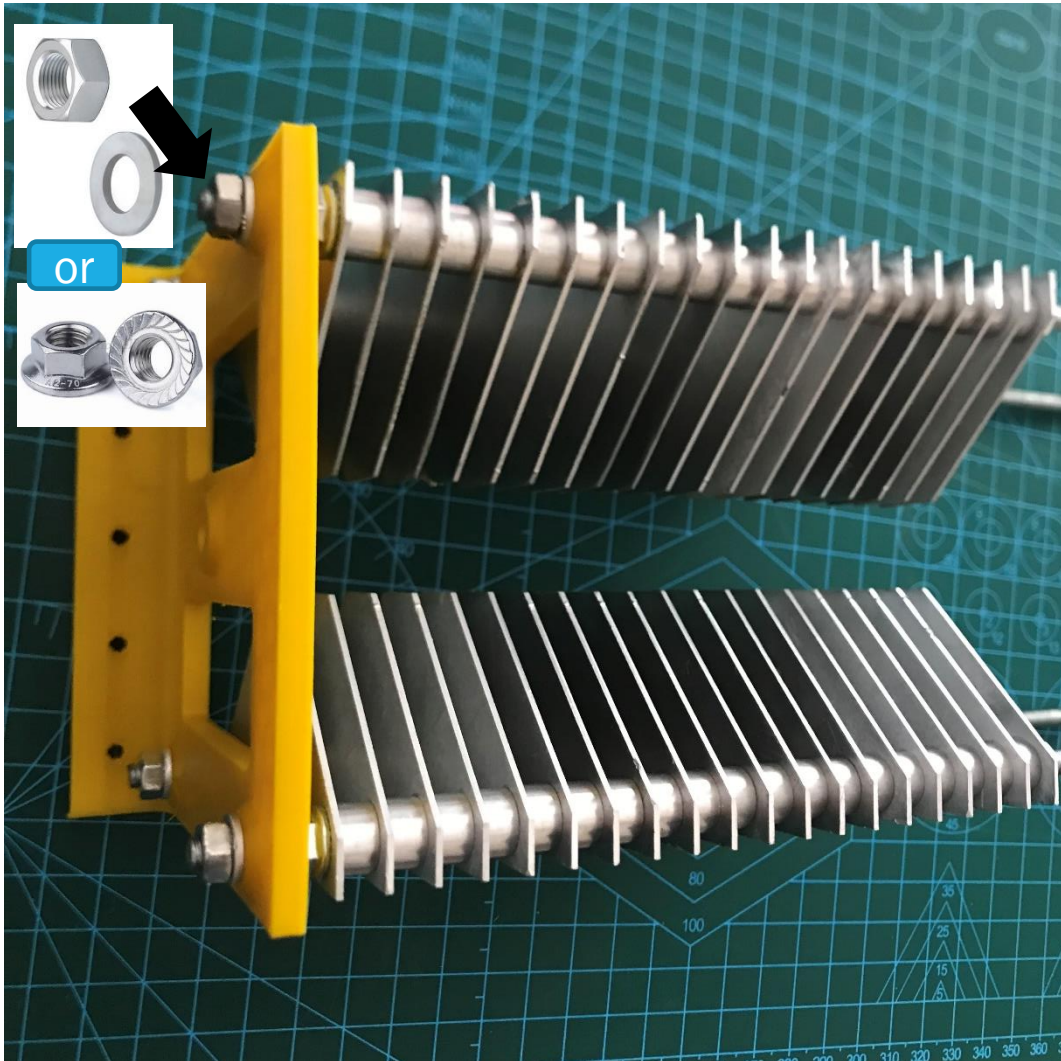
Then place the stator plates and spacers respectively as shown in the picture (use half of the stator sets) and finalize that using the flanged nuts on top.

Finally, tighten the nuts on both sides with the help of pliers.

Repeat the same for other side of stator plates and center rod & rotors.



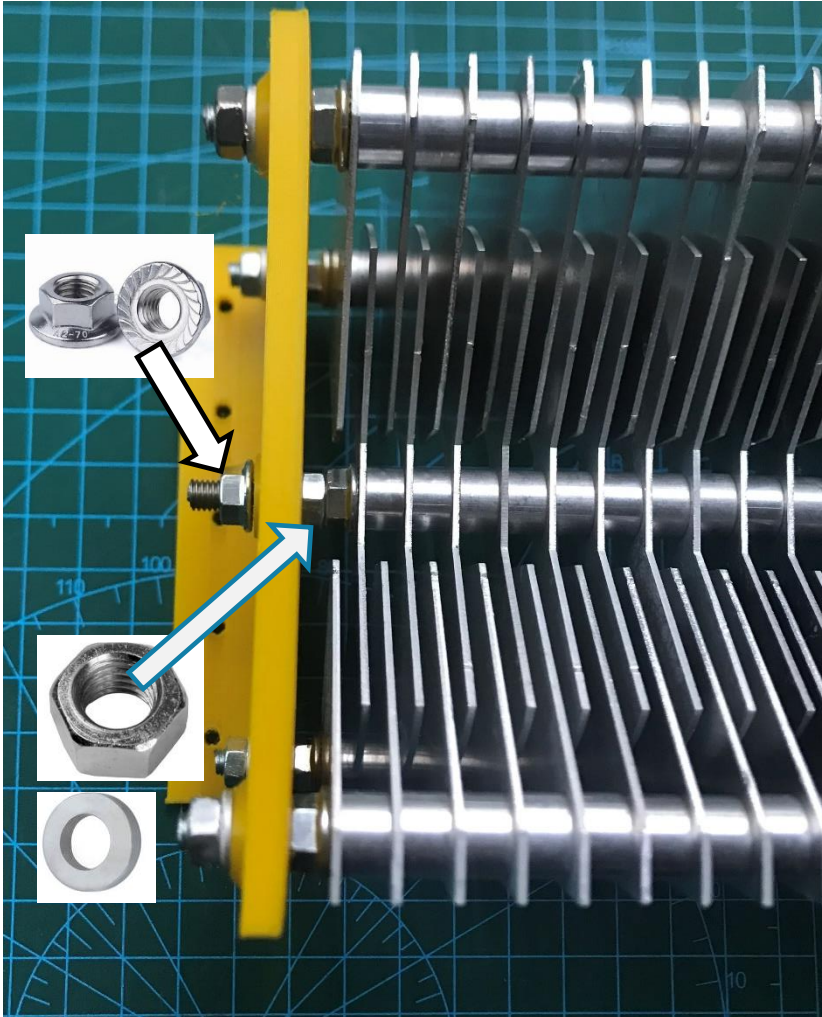
## STEP-2



Take one of the end plates and insert the stator rods by positioning the lower mounting part outside as seen in the left picture.

Use **flanged nuts** to attach the stator rods to the end plate (or you can use **washers and nuts together**, it doesn't matter)

## STEP-3

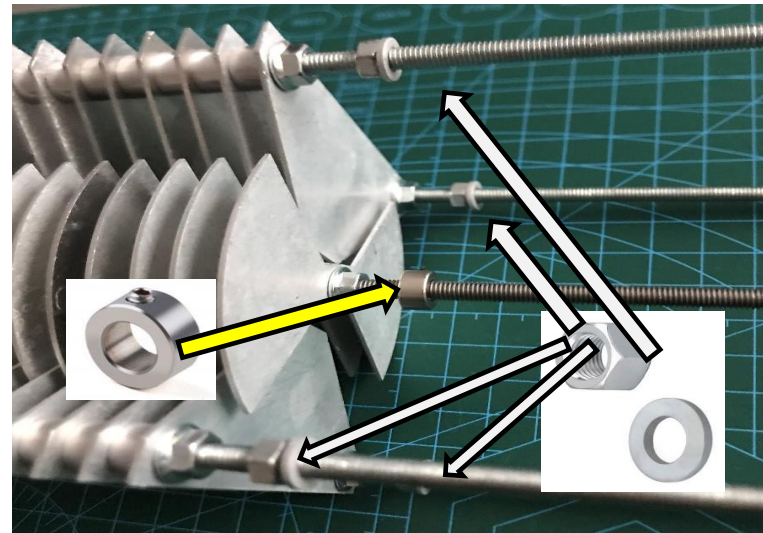


Insert a regular nut or a few washers on top of the flanged nut on the center bar. (You may need to add a few more washers if you are using 1.5mm plates, or less if you are using 5 mm spacers)

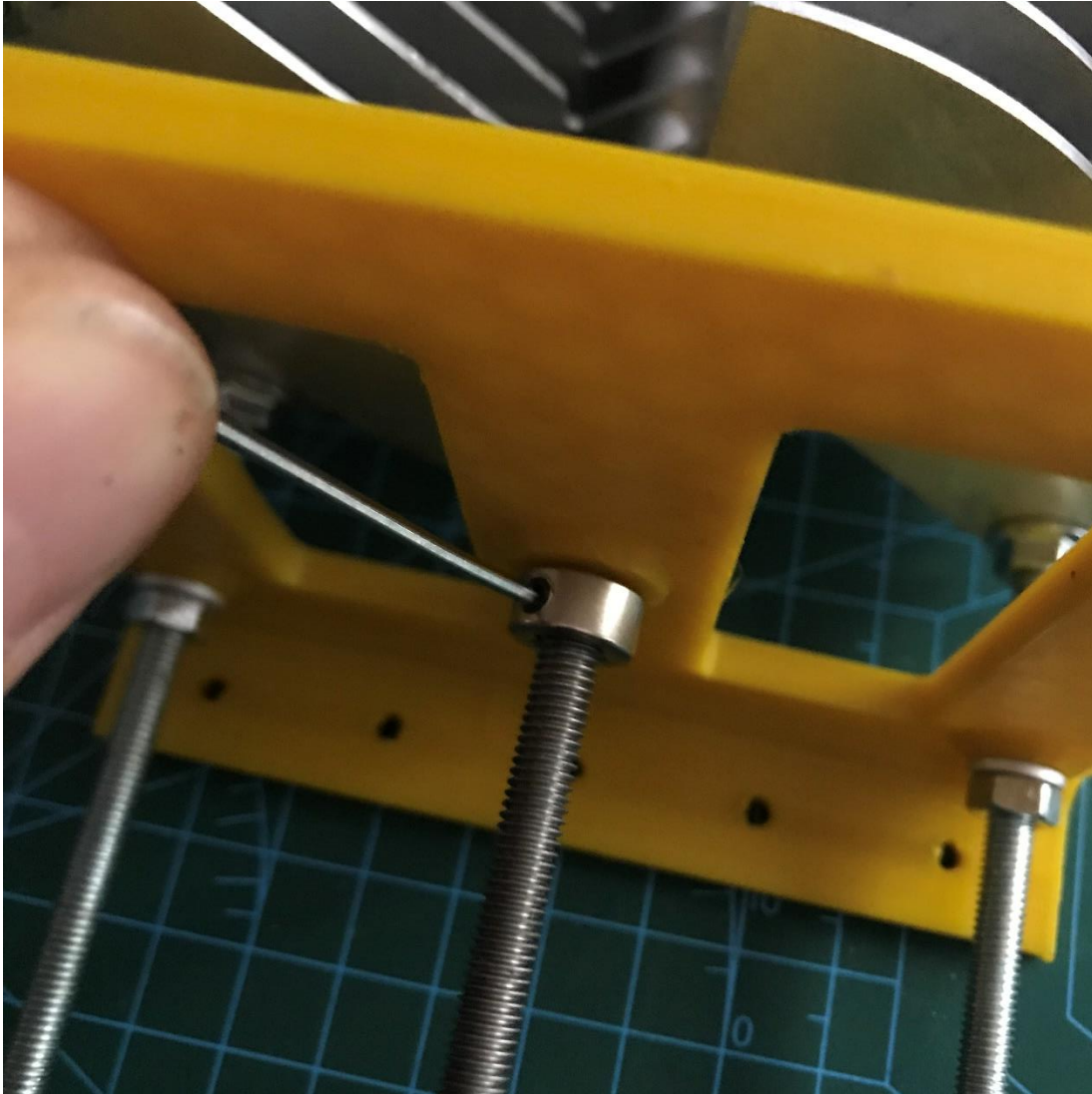
Then carefully insert the center rod to the center hole of the endplate and insert a flanged nut, but keep it loose. Rotor and stator plated should align with that position but we will fine tune that while assembling the other side.

### For the front side;

Insert a nuts+washer (or one flanged nut) to each stator rods and align them. Insert a lock collar to the center rod and keep it loose for now.



## STEP-4



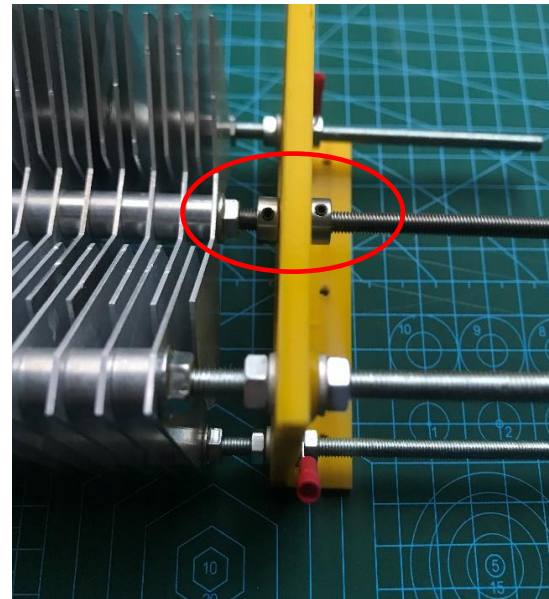
Place the other endplate.

Insert nut+washer to the stator rods and tighten all of them from both sides.

Insert other lock collar to the center rod and you can move the center rod back and forth a little to align the rotor plates to the stators. Then lock the lock collars from both side using the allen key (see the red circle)

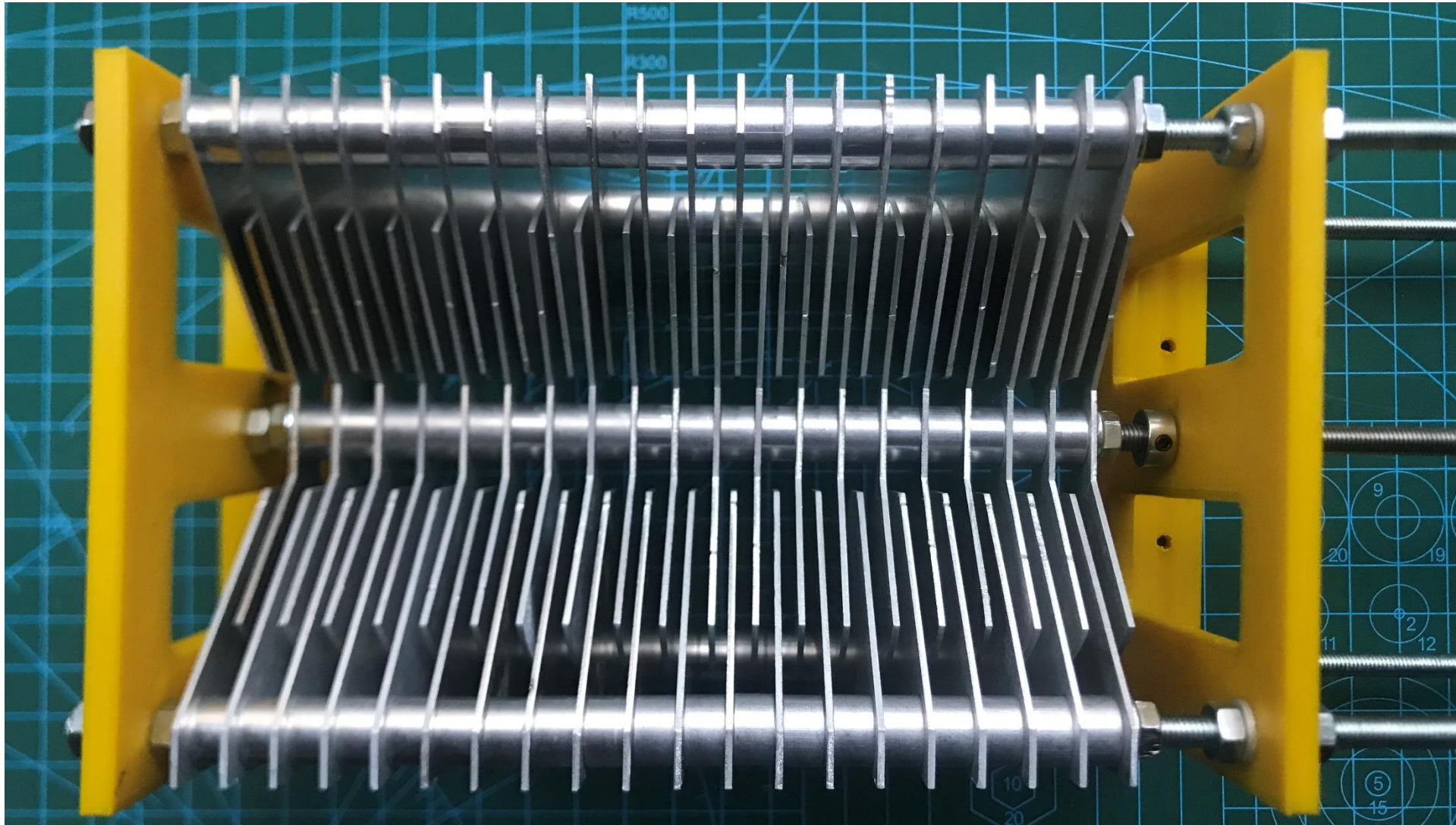


When wiring between capacitor and loop antenna endpoints, use thick wire (AWG 12 or less ~2mm) and keep the distance as short as possible to get lowest SWR.



Perfect alignment

**A FINISHED SAMPLE CAPACITOR (20 SETS OF 1 MM PLATES & 6 MM SPACERS USED)**



# CAPACITANCE TABLE BY PLATE SET

## USING 1 MM PLATES

1 mm

PLATE SET	Spacer	Plate Spacing*	Capacitance pF		Breakdown
			min	max	Max Voltage
5 SET	5mm/0.20"	2mm/0.08"		29	5,900
	6mm/0.24"	2.5mm/0.10"	1	23	7,400
10 SET	5mm/0.20"	2mm/0.08"		66	5,900
	6mm/0.24"	2.5mm/0.10"	5	53	7,400
15 SET	5mm/0.20"	2mm/0.08"		102	5,900
	6mm/0.24"	2.5mm/0.10"	9	79	7,400
20 SET	5mm/0.20"	2mm/0.08"		139	5,900
	6mm/0.24"	2.5mm/0.10"	12	110	7,400
25 SET	5mm/0.20"	2mm/0.08"		175	5,900
	6mm/0.24"	2.5mm/0.10"	15	136	7,400
30 SET	5mm/0.20"	2mm/0.08"		212	5,900
	6mm/0.24"	2.5mm/0.10"	19	163	7,400

**Disclaimer:** Measurements using the 6 mm spacer are actual measurements and made by me. Other measurements were calculated using the KI6GD Capacitor Calculator using various plate spacings. The actual capacitance range of the finished capacitor can vary depending on your build and the accuracy of your capacitance meter.

For QRP operations (ie, < 20W), you can use a butterfly capacitor in parallel wiring mode to get x4 times capacitance. (Just short circuit both stators and wire rotor and stator)

Plate spacing formula = (Spacer length - Plate thickness)/2