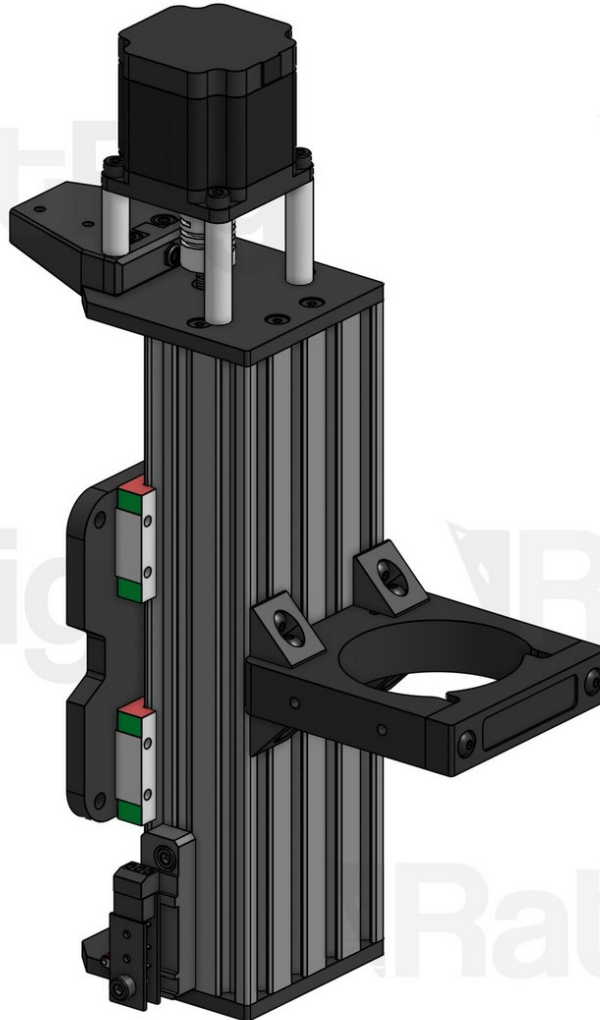


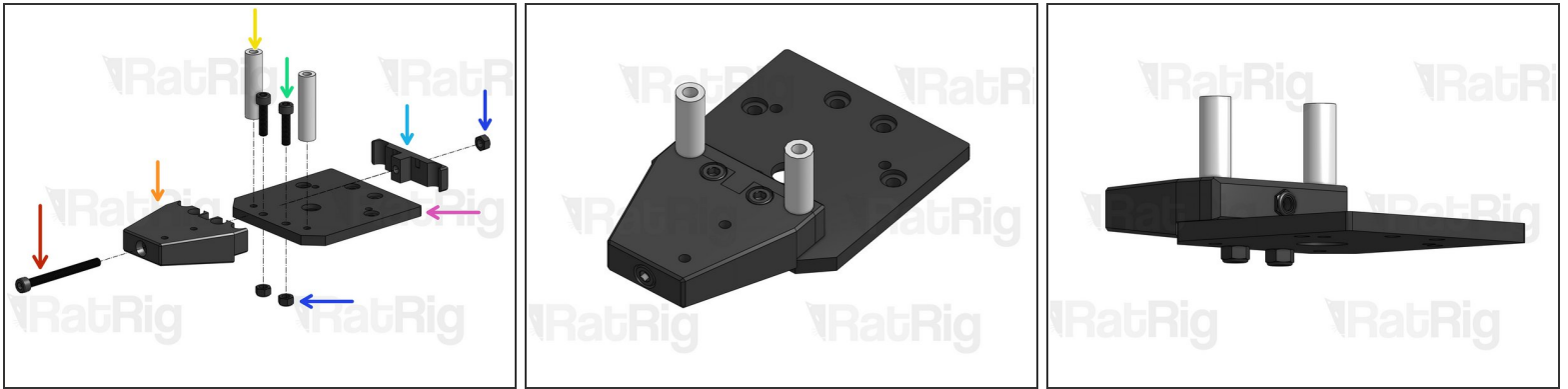
Rat Rig

02. Z Axis

Written By: Rat Rig



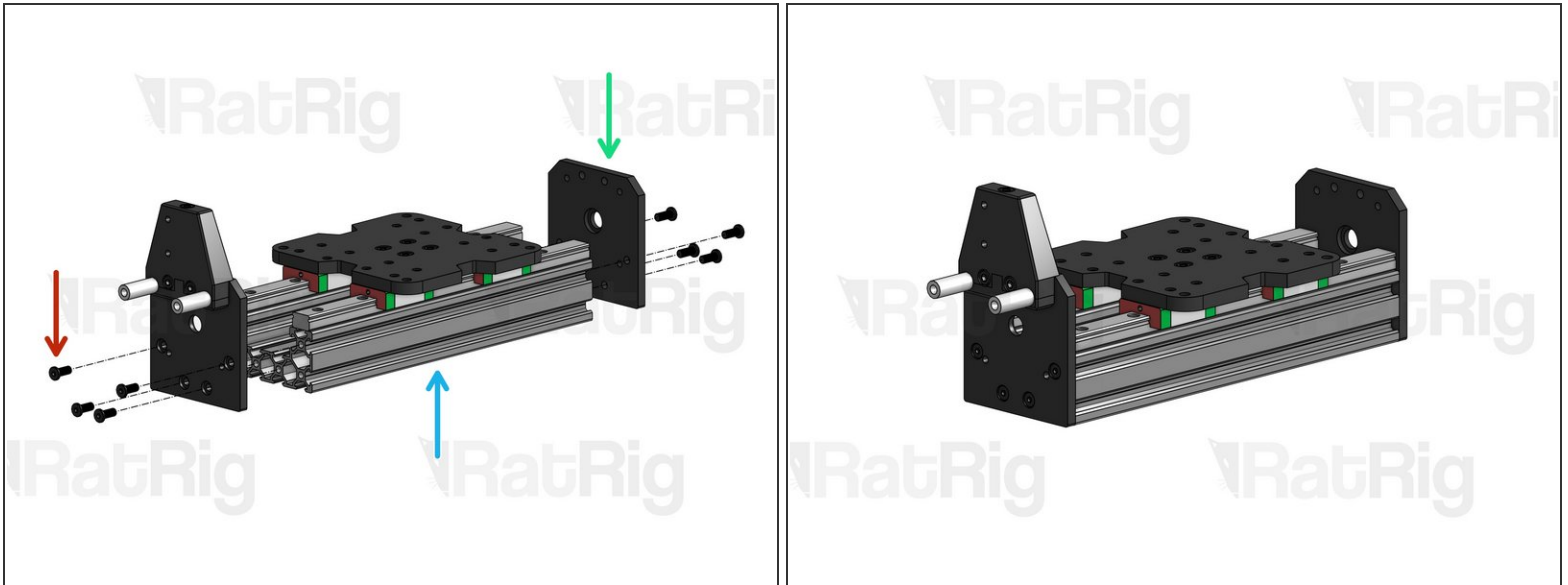
Step 1 — Set-up Z Top Plate



- Z Top Plate
- Cap Head Screw M5x60mm
- Drag chain support Front (printed part)
- Drag chain support Back (printed part)
- 40mm Spacer
- Cap Head Screw M5x20mm
- Hex Locking Nut M5

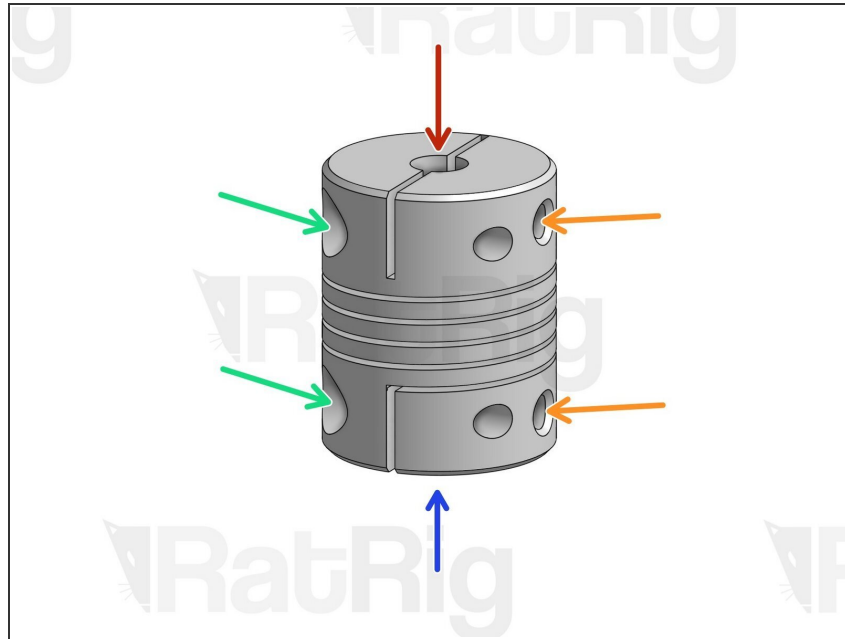
 Do not overtighten any of the screws shown in this step.

Step 2 — Attach Z Plates



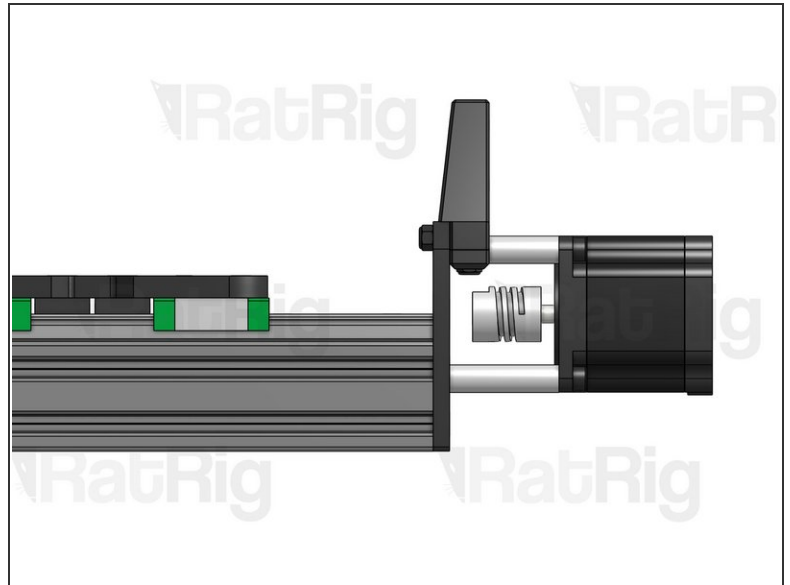
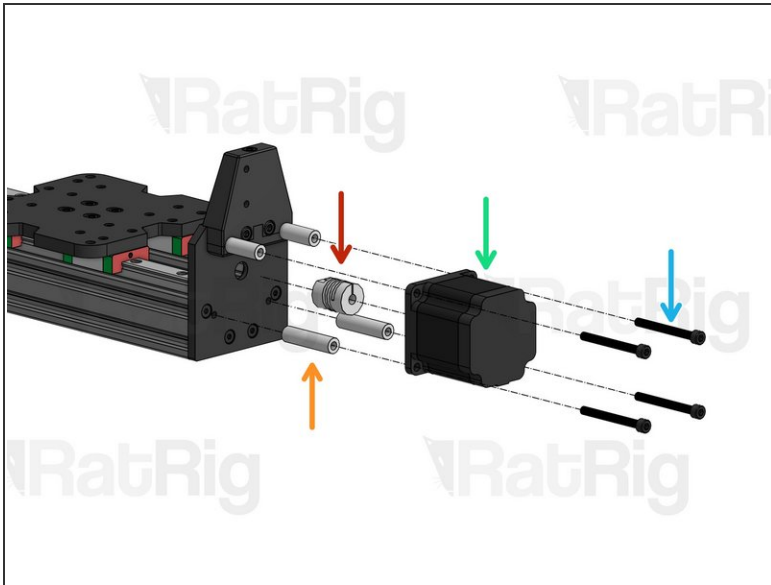
- Low Profile Screw M5x12mm
 - Z Axis C-Beam
 - Bottom Z Plate. Do not fasten all the way down yet, you will need some room for adjustment.
- ⚠ Carefully align the Top Z Plate with the corners of the C-Beam before tightening down the screws.

Step 3 — A note about Flexible Couplings



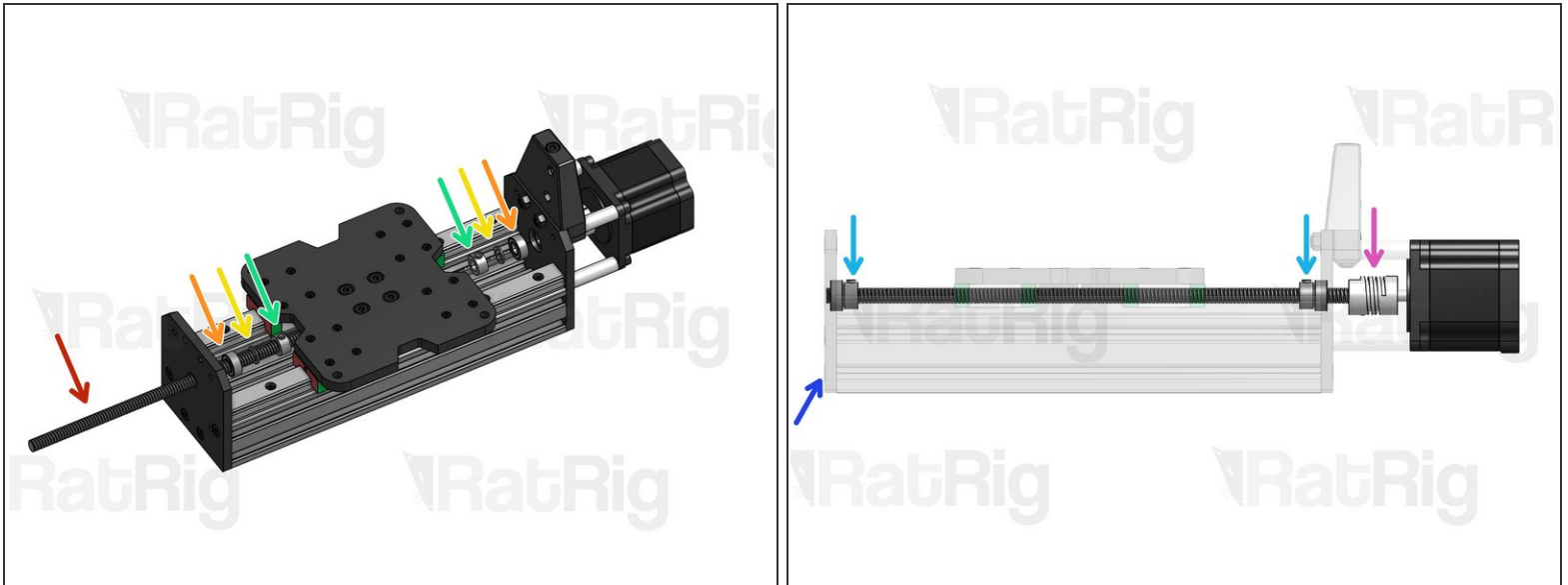
- ① Flexible couplings allow you to connect 2 rods with different diameters while providing some flexibility at the joint.
- Smaller diameter rod is inserted here
 - Larger diameter rod is inserted here
 - These larger screws act like a clamp on the entire coupling. Tighten these first.
 - These set screws press directly against the tip of each rod, locking it in place.

Step 4 — Mount Z Motor



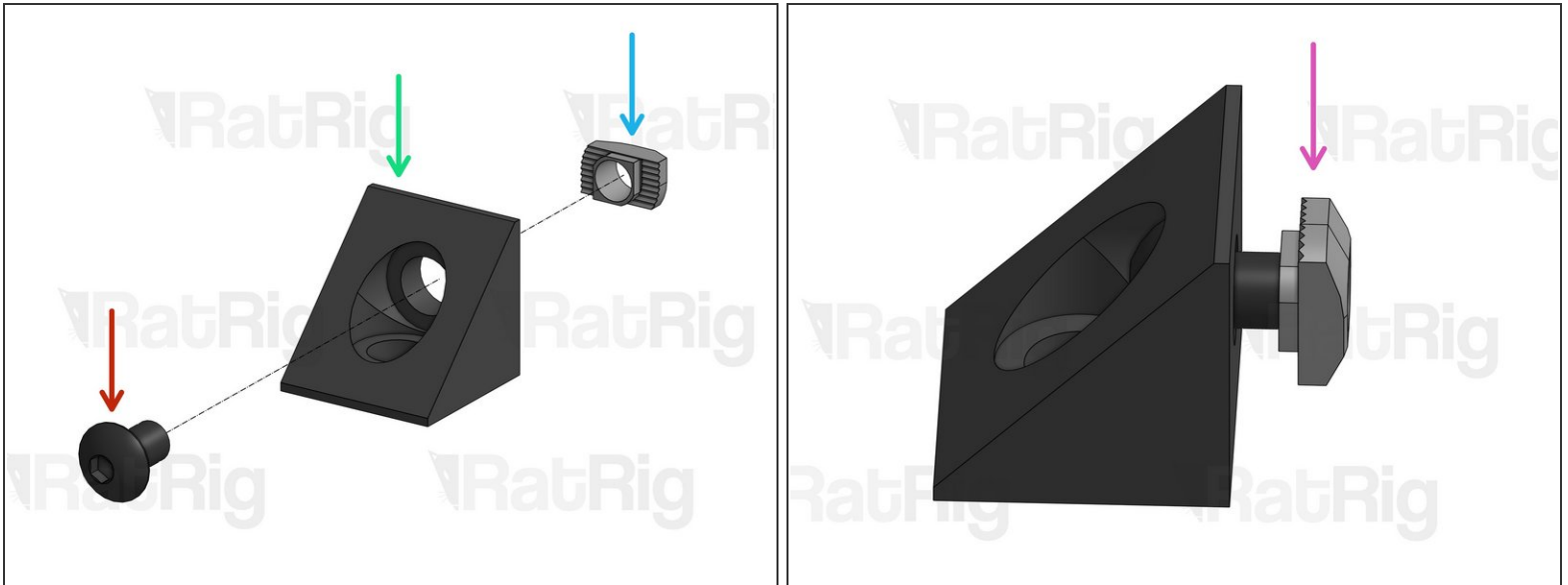
- Flexible Coupling 1/4"x8mm
- Spacer 40mm
- Nema 23 Motor
- Cap Head Screw M5x50mm

Step 5 — Mount Z Lead Screw



- Lead Screw 281mm
- 688ZZ Ball Bearing
- Precision Shim 12x8x1mm
- Lock Collar 8mm
- Attach the 8mm end of the flexible coupling to the lead screw. On the coupling, tighten the clamping screws first, and the set screw afterwards.
- Fully tighten the screws on the Bottom Z Plate, which you left slightly loose on step 2.
- Press the Lock Collars against the inner face of each Z Plate, and tighten their Set Screw, to lock them in position.

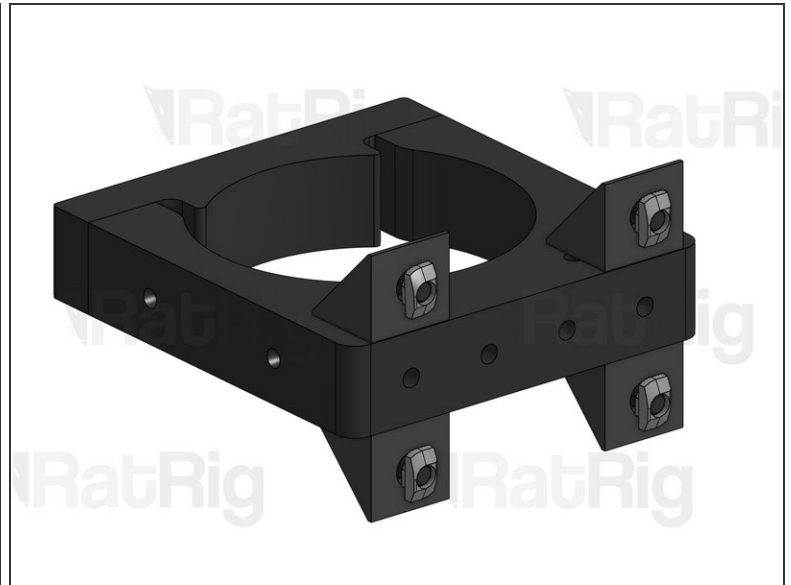
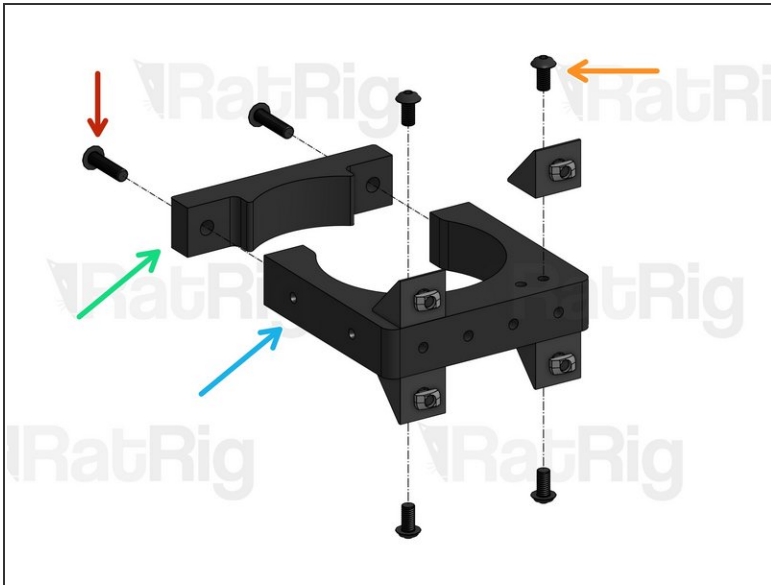
Step 6 — Set up Angle Corners (x4)



i Repeat this step for 4 Angle Corners

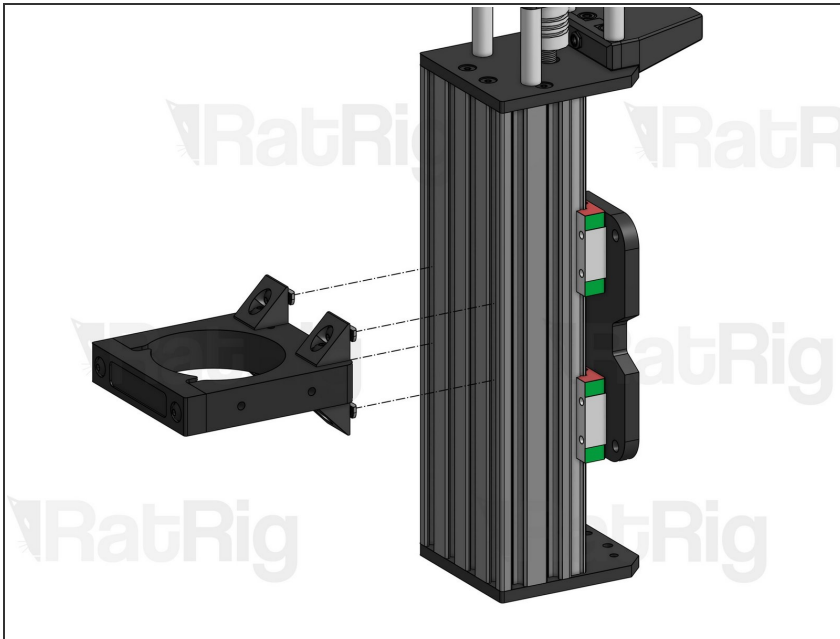
- Button Head Screw M5x8mm
- Angle Corner
- Drop-in T-Nut
- Slightly screw the T-Nut in position, but don't tighten yet.

Step 7 — Set up Spindle Mount



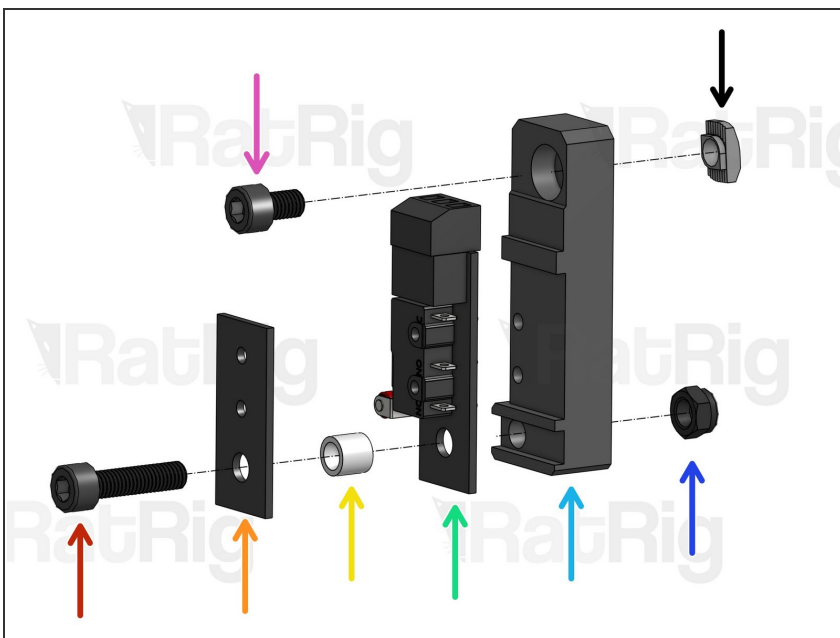
- Spindle Mount Front Part
- Spindle Mount Back Part
- Button Head Screw M5x20mm
- Button Head Screw M5x10mm

Step 8 — Attach Spindle Mount to Z Axis



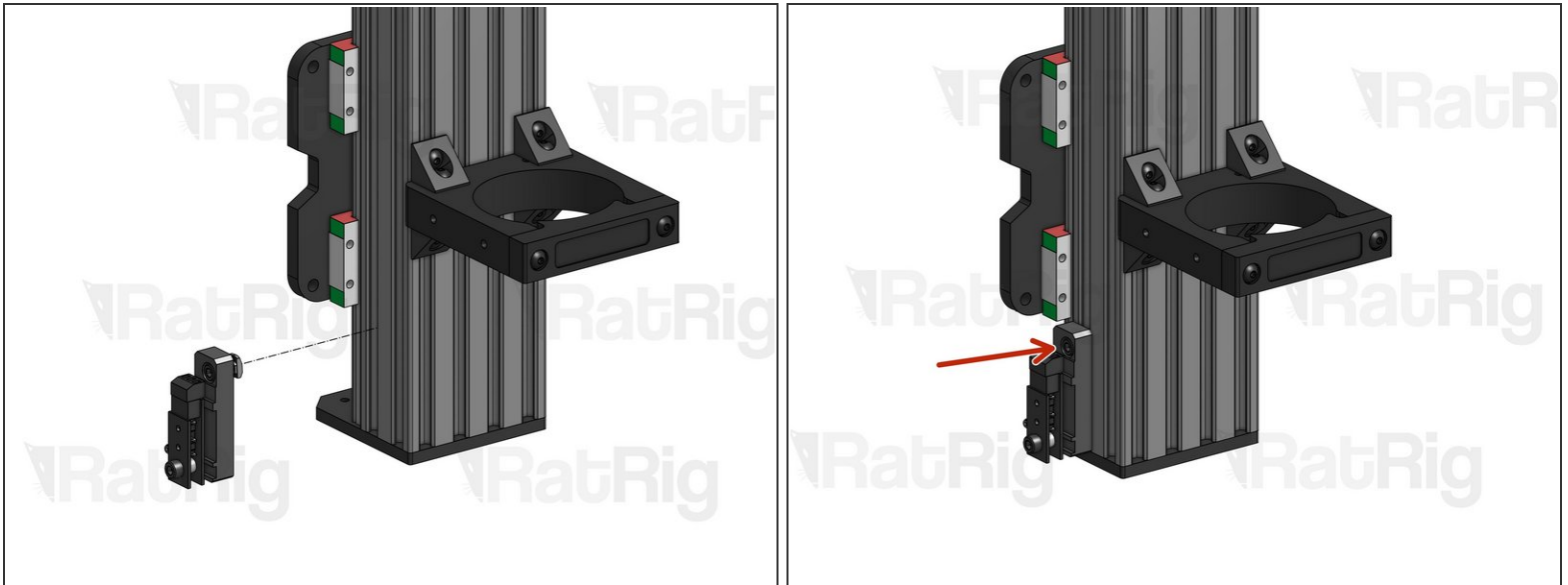
- Fit the loose Drop-in T-Nuts inside the C-Beam slots. Place the mount roughly at half the C-Beam length.
- Tighten down the screws to lock the mount in place.

Step 9 — Set-up Z Limit Switch



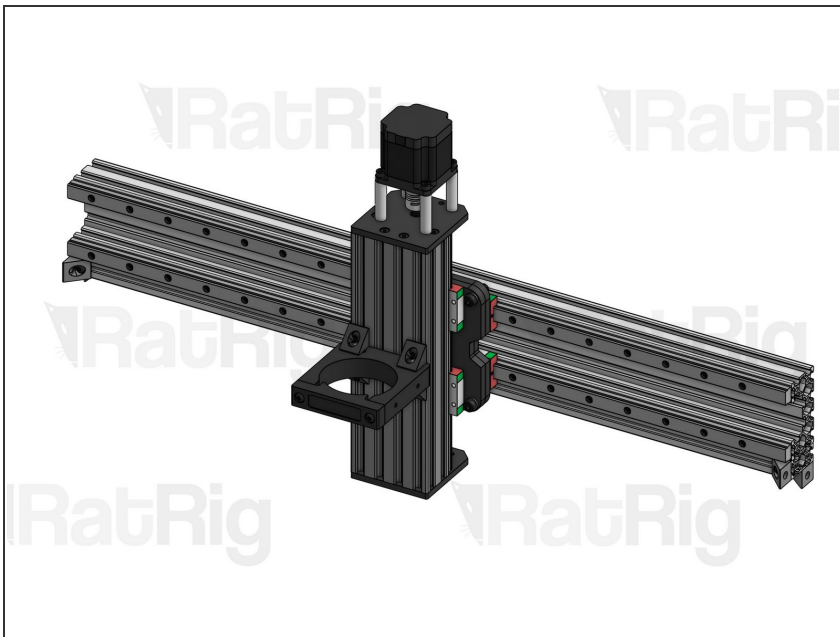
- Cap Head Screw M5x20mm
- Xtension Limit Switch Small Plate
- Xtension Limit Switch Nylon Spacer
- Xtension Limit Switch
- Z Limit Switch mount (printed part)
- Hex Locking Nut M5
- Cap Head Screw M5x8mm
- Drop-in T-Nut M5. Set in position, but don't tighten.

Step 10 — Mount Z Limit Switch



- Fit the Drop-in T-Nut inside the C-Beam slot and tighten the screw.

Step 11 — Next guide



- Move on to the [X Axis assembly](#).