Rat Rig

01. Frame Assembly

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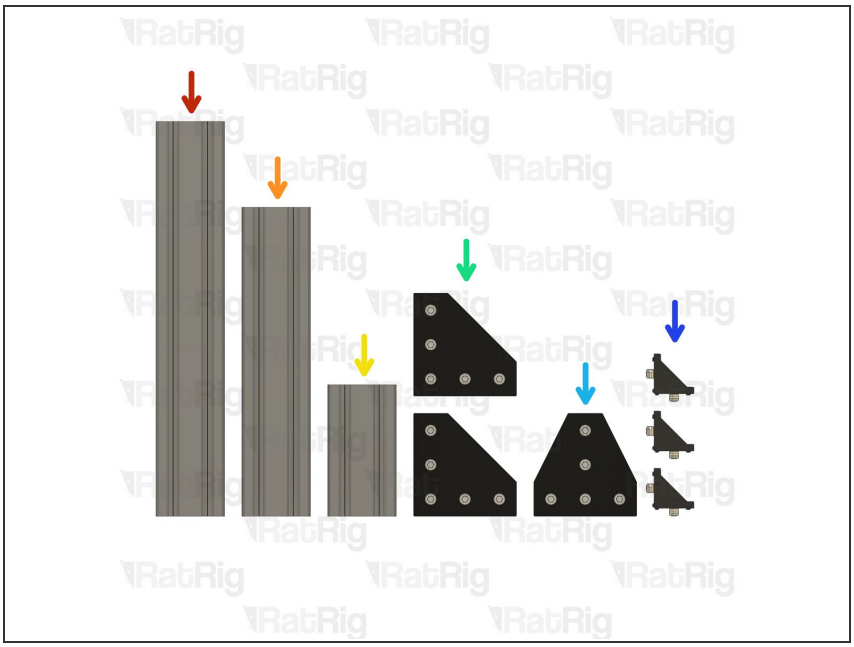
INTRODUCTION

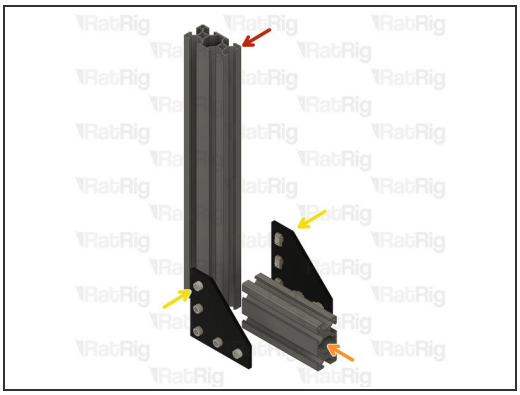
[video: https://youtu.be/WId6irFe4z8]

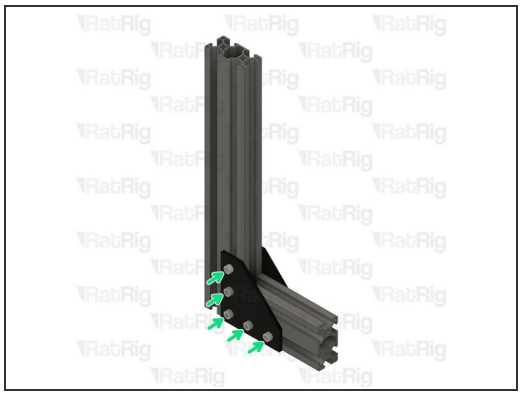
Step 1 — Prepare the frame parts



- 1x 345mm 3060 Extrusion
- 1x 270mm 3060 Extrusion
- 1x 115mm 3060 Extrusion
- 2x Corner Plate
- 1x T-Shape Joining Plate
- 3x 90 Degree Corner

Step 2 — Assemble the frame - Part 1



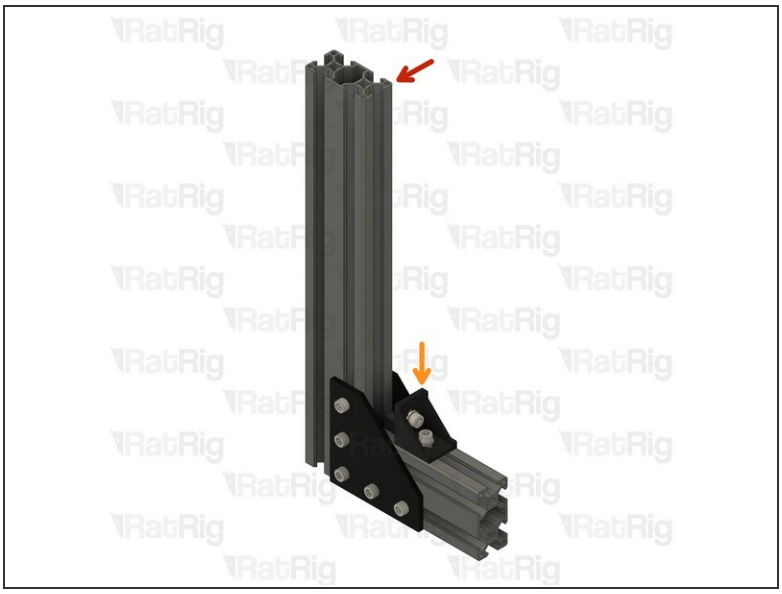


- 345mm 3060 Extrusion
- 115mm 3060 Extrusion
- 2x Corner Plate

ⓘ It is recommended to assemble the frame on a flat surface and to ensure that the extrusions are square to one another.

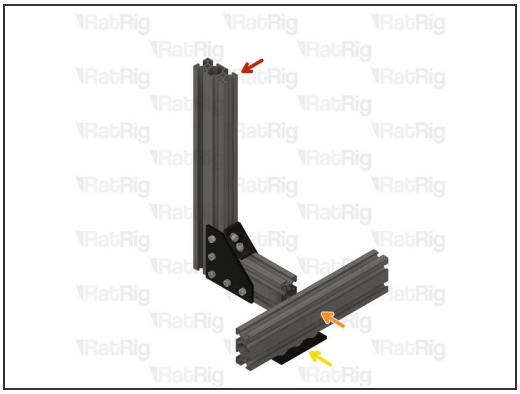
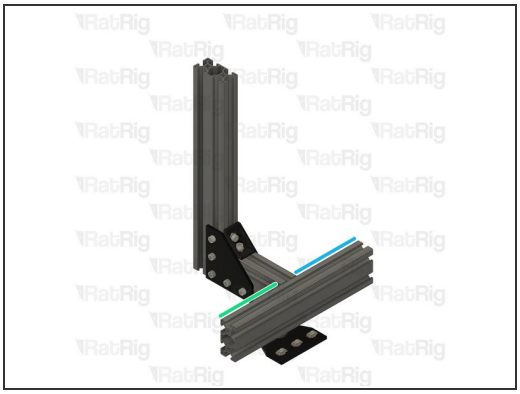
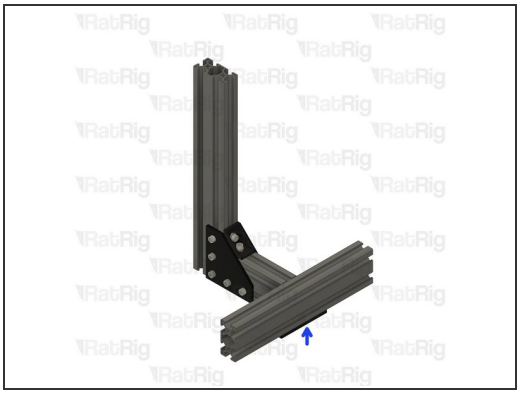
- Fasten all ten M6x12 screws on the corner plates

Step 3 — Assemble the frame - Part 2



- Assembly from **Step 2**
- 90 Degree Corner
- Install the 90 degree corner as shown
- Fasten both M6x12 screws on the 90 degree corner

Step 4 — Assemble the frame - Part 3

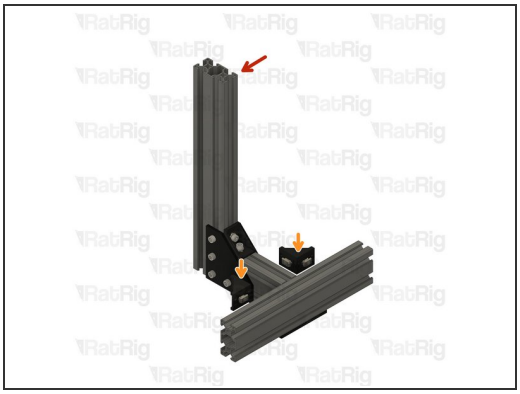
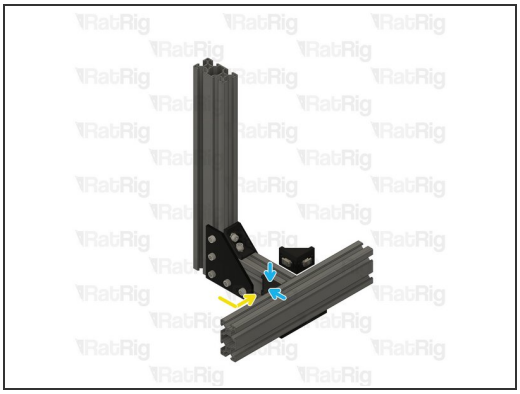
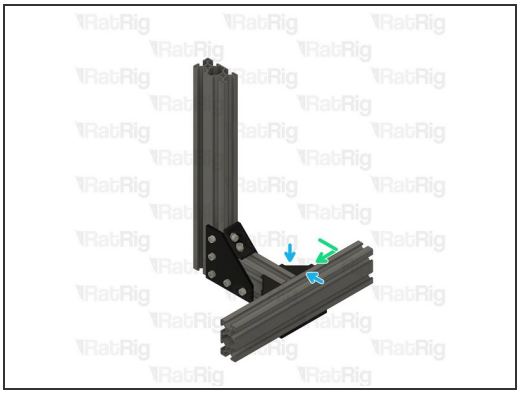
- Assembly from **Step 3**
- 270mm 3060 Extrusion
- T-Shape Joining Plate

ⓘ Position the 270mm 3060 extrusion as shown. The distances shown should be as follows:

- 100mm
- 140mm

- Install the T-shape joining plate as shown and secure all five M6x12 screws

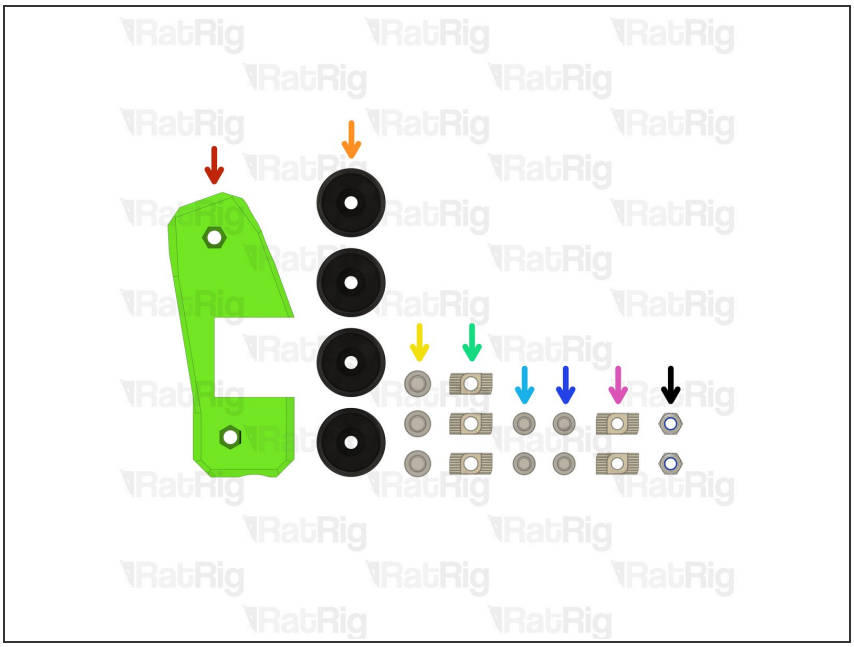
Step 5 — Assemble the frame - Part 4

- Assembly from **Step 4**
- 2x 90 Degree Corner
- Install the first 90 degree corner as shown
  - Fasten both M6x12 screws on the first 90 degree corner
- Install the second 90 degree corner as shown
  - Fasten both M6x12 screws on the second 90 degree corner

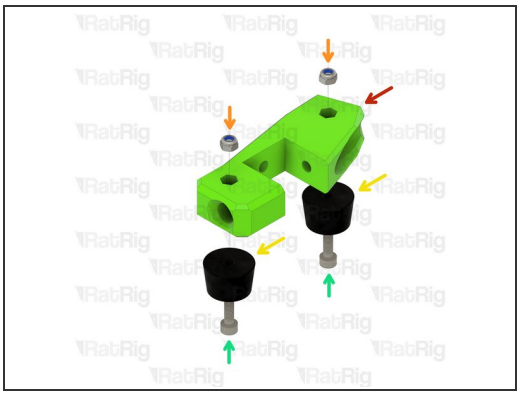
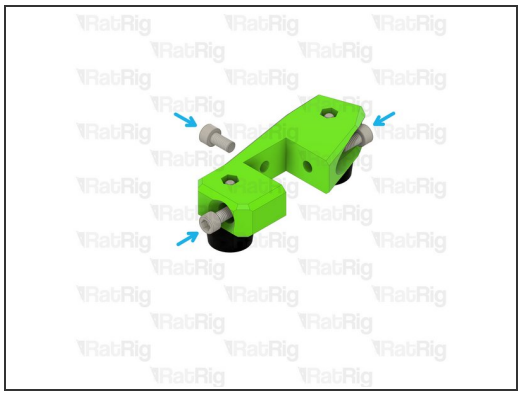
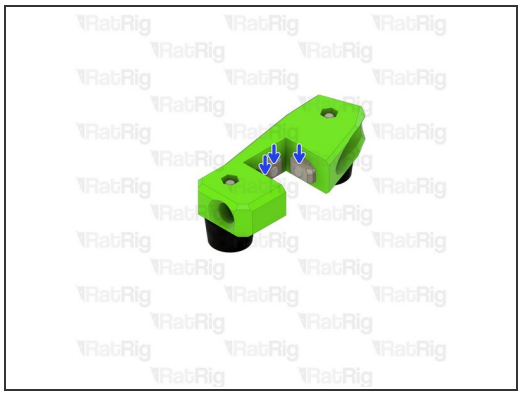
ⓘ Set the frame assembly aside until **Step 8**

Step 6 — Prepare the parts for the feet



- side_legs printed part
- 4x Rubber Foot
- 3x M6x12 Cap Head Screw
- 3x 3030 Drop-in T-Nut - M6
- 2x M5x25 Cap Head Screw
- 2x M5x14 Cap Head Screw
- 2x 3030 Drop-in T-Nut - M5
- 2x M5 Nylon Locking Hex Nut

Step 7 — Assemble the rear feet

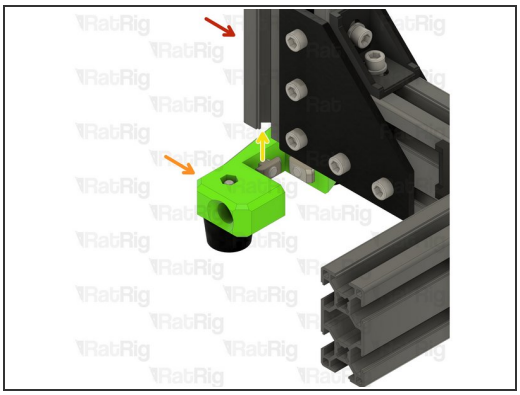
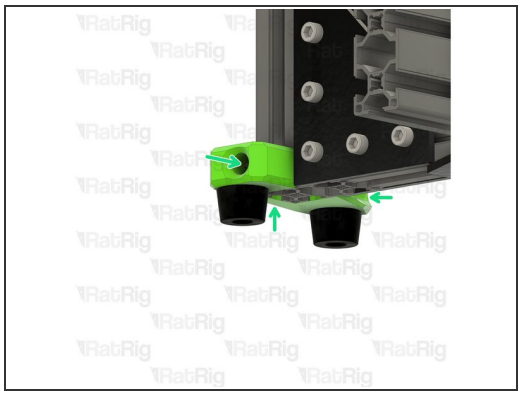
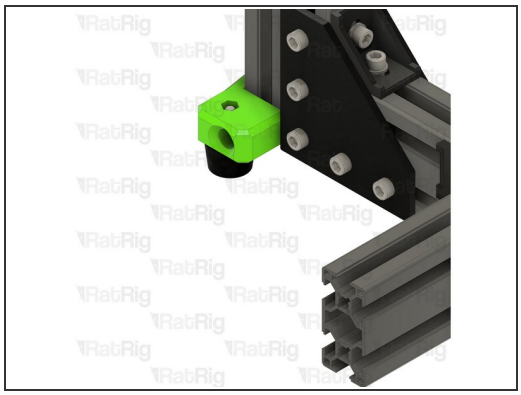




- side_legs printed part
- 2x M5 Nylon Locking Hex Nut
- 2x Rubber Foot
- Fasten the two M5x25 screws through the rubber foot and into the M5 nylon locking nuts

  ⚠ Take care not to over tighten the M5x25 screws as you can damage the printed part.
- 3x M6x12 Cap Head Screw
- 3x 3030 Drop-in T-Nut - M6

ⓘ Loosely thread the 3030 T-Nuts onto the M6x12 screws. Do not tighten them at this point.

Step 8 — Install the rear feet

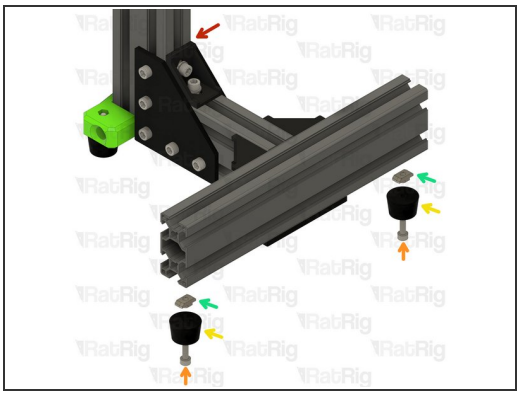
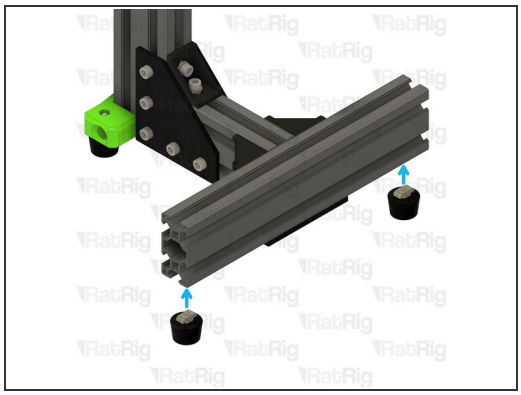
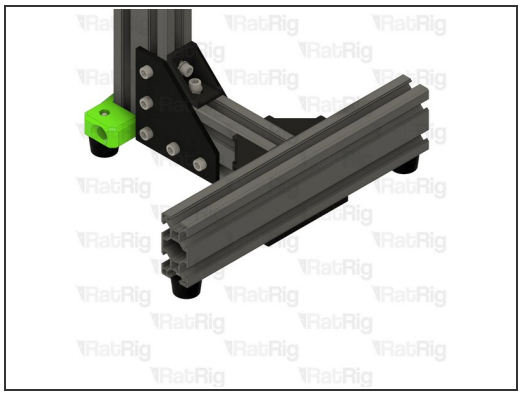




- Frame assembly from **Step 5**
- Rear feet assembly from **Step 7**
- Install the rear feet assembly onto the frame as shown

  ⓘ Make sure the printed part is flush with the end of the 3060 extrusion
- Fasten all three M6x12 screws to secure the rear feet assembly to the frame

  ⚠ Take care not to over tighten the M6x12 screws as you can damage the printed part

Step 9 — Install the front feet

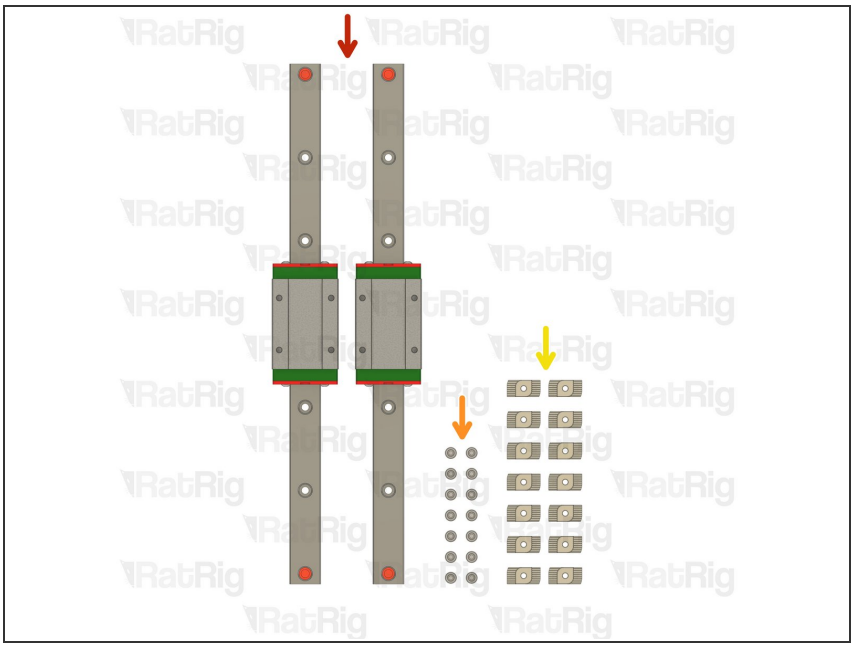
- Assembly from **Step 8**
- 2x M5x14 Cap Head Screw
- 2x Rubber Foot
- 2x 3030 Drop-in T-Nut - M5

Insert the M5x14 screws into the rubber feet and loosely thread the 3030 T-Nuts onto them.

- Insert the assembled feet into the ends of the 3060 extrusion as shown. Fasten the M5x14 screws to secure them in place.

Place the frame assembly on a flat surface and make sure all four feet are level. The frame should sit firmly without any wobble.

Step 10 — Prepare the linear rail parts

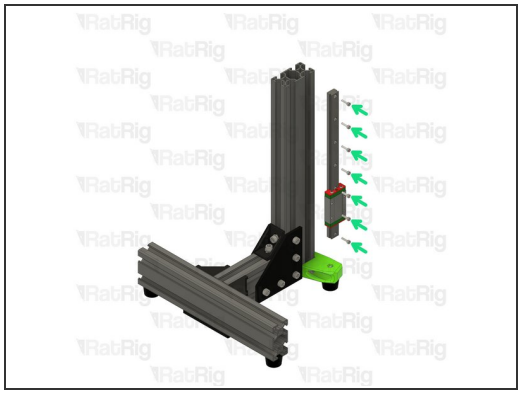


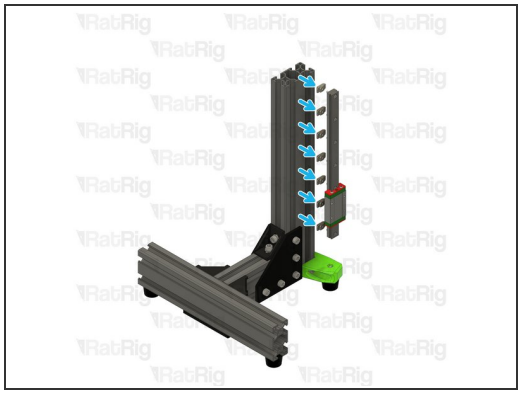
- 2x 250mm MGN15 Linear Rail
- 14x M3x12 Cap Head Screw
- 14x 3030 Drop-in T-Nut - M3

⚠ Please refer to the Rat Rig Linear Rail Guide (Steps 1 & 2) for full details on preparing the rails before installation.

⚠ The linear rail carriages are not interchangeable. Do not try to use a carriage on a different linear rail than the one it was supplied with.

Step 11 — Install the Z-axis linear rail - Part 1





- Frame assembly from **Step 9**
- MGN15 Linear Rail
- Remove the plastic stops installed in the ends of the linear rail

  ⚠ Do not allow the linear rail carriage to leave the end of the rail.
- Insert an M3x12 screw in each of the holes on the linear rail
- Loosely thread a 3030 T-Nut onto each of the M3x12 screws

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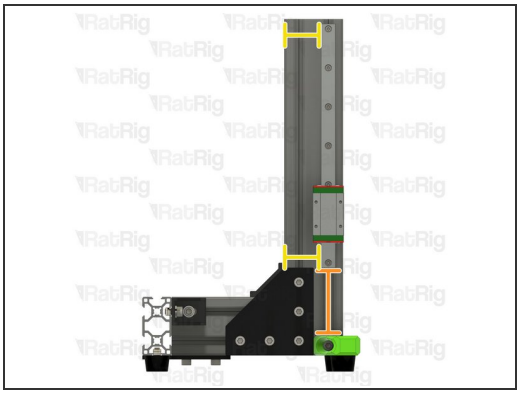
Step 12 — Install the Z-axis linear rail - Part 2

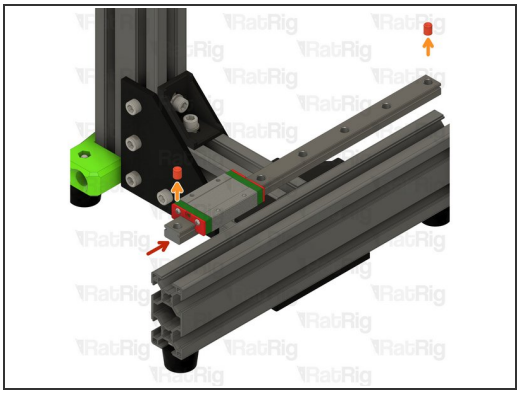



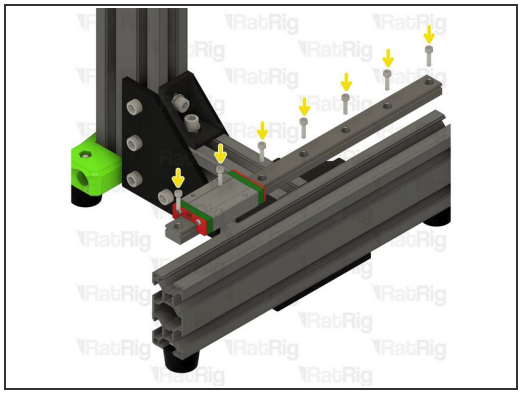

- Insert the linear rail into the 3060 extrusion. Position the rail as shown with the following measurements:
  - 70.00 mm
  - 37.50 mm
- Fasten the M3x12 screws, starting from the top
- Double check the position of the linear rail, using the measurements above
- Fasten the remaining M3x12 screws, starting at the top

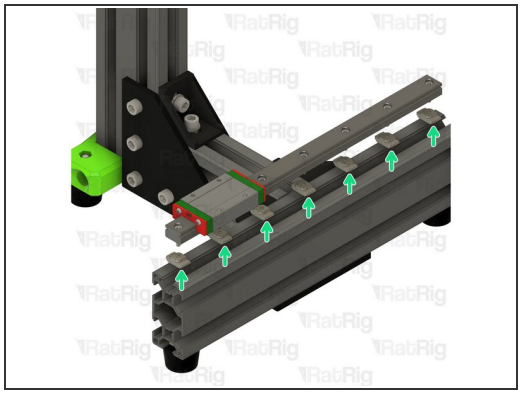
Step 13 — Install the Z-axis linear rail - Part 3

- Re-install the plastic stops at the ends of the linear rail
- Check that the carriage runs smoothly along the length of the rail

Step 14 — Install the Y-axis linear rail - Part 1



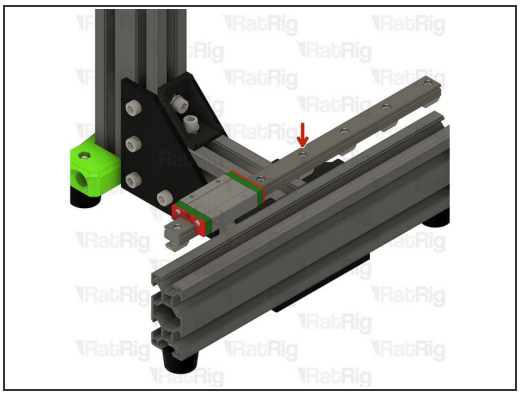
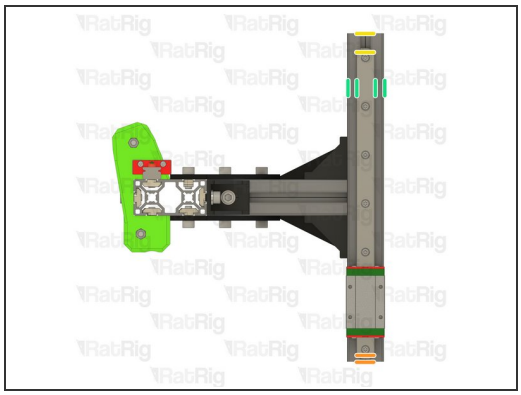
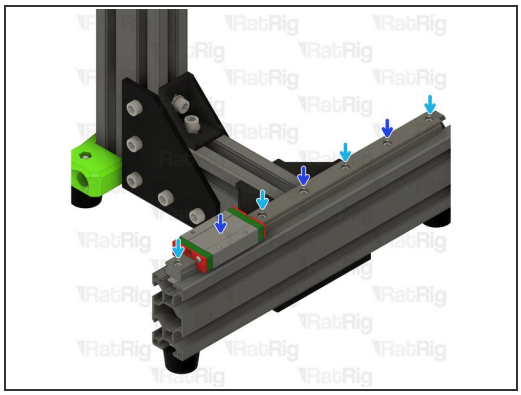




- MGN15 Linear Rail
- Remove the plastic stops installed in the ends of the linear rail

  ⚠ Do not allow the linear rail carriage to leave the end of the rail
- Insert an M3x12 screw in each of the holes on the linear rail
- Loosely thread a 3030 T-Nut onto each of the M3x12 screws

Step 15 — Install the Y-axis linear rail - Part 2

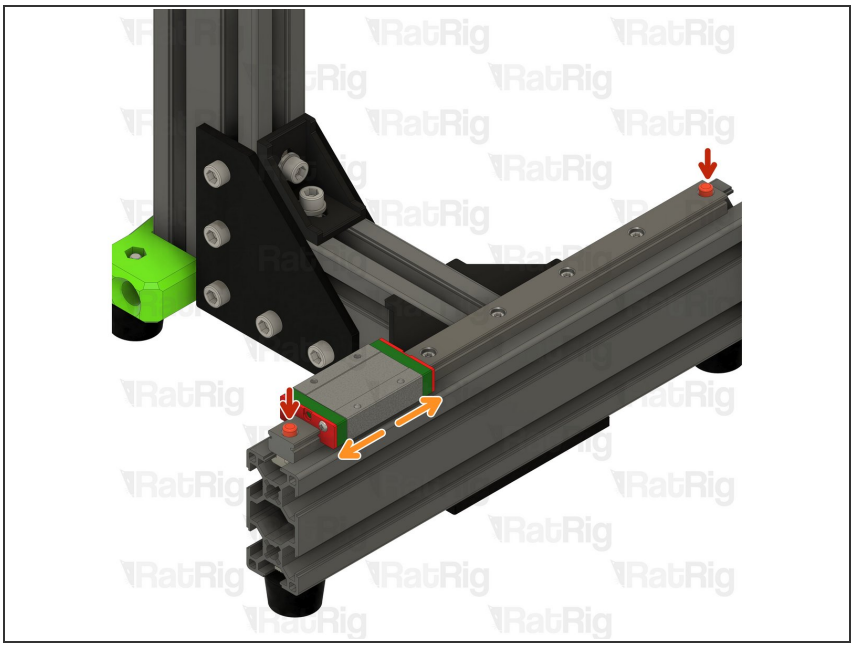




- Insert the linear rail into the 3060 extrusion. Position the rail as shown with the following measurements:
  - 5.00 mm
  - 15.00 mm
  - 7.50 mm
- Fasten the M3x12 screws, starting from the left

ⓘ Double check the position of the linear rail, using the measurements above

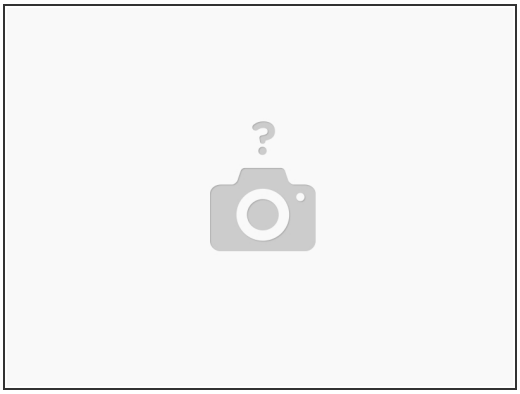
- Fasten the remaining M3x12 screws, starting at the left

Step 16 — Install the Y-axis linear rail - Part 3



- Re-install the plastic stops at the ends of the linear rail
- Check that the carriage runs smoothly along the length of the rail

Step 17 — Next guide



Continue with the next guide: [02. Z-Axis Motor Assembly]