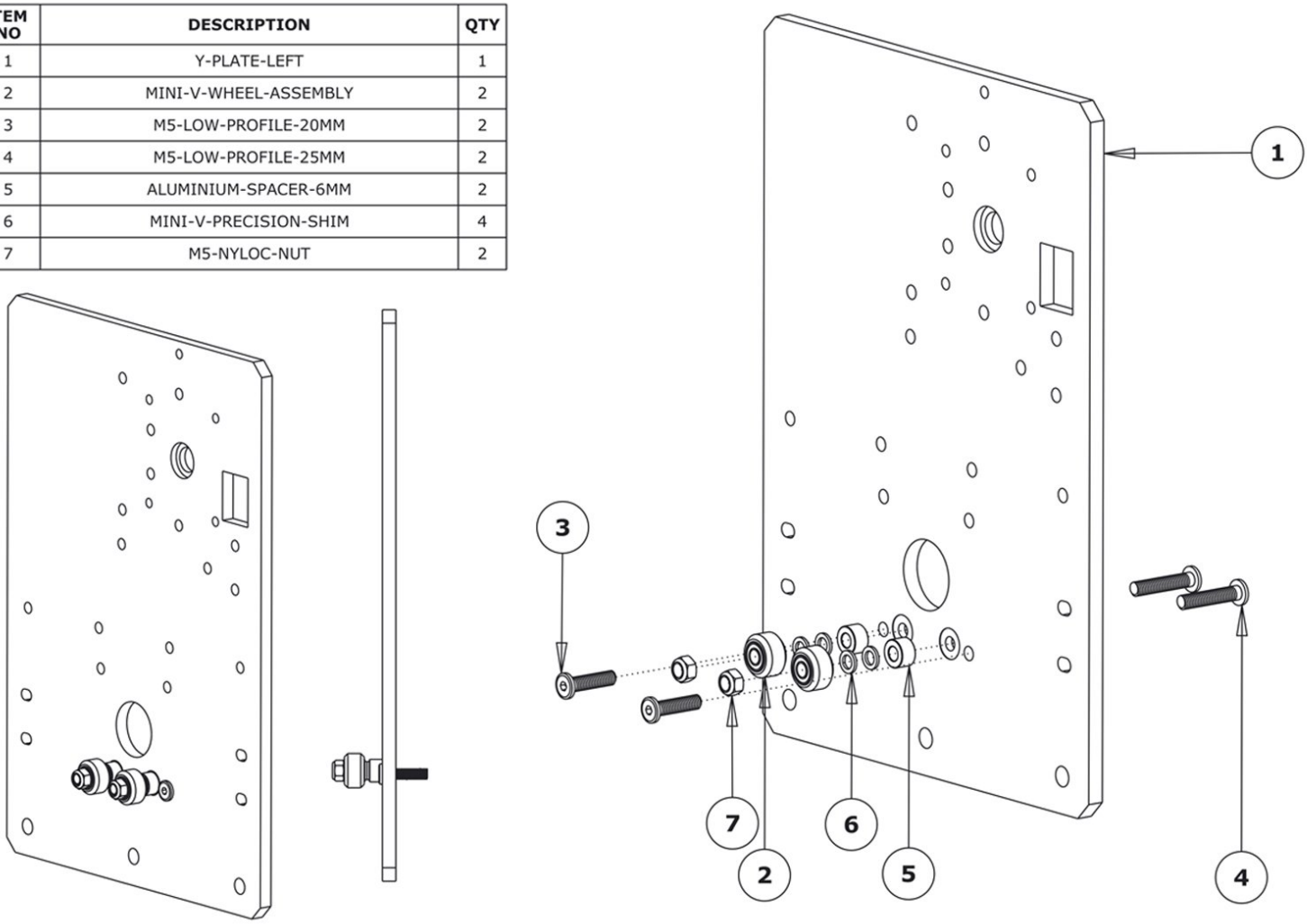
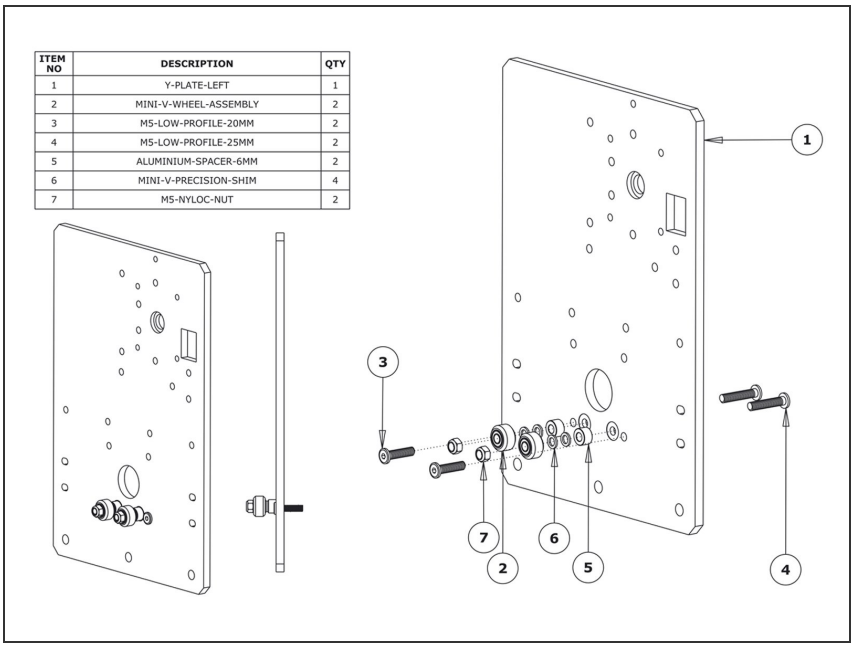
2. Y-Plate Assembly

Written By: Harry Ince

ITEM NO	DESCRIPTION	QTY
1	Y-PLATE-LEFT	1
2	MINI-V-WHEEL-ASSEMBLY	2
3	M5-LOW-PROFILE-20MM	2
4	M5-LOW-PROFILE-25MM	2
5	ALUMINIUM-SPACER-6MM	2
6	MINI-V-PRECISION-SHIM	4
7	M5-NYLOC-NUT	2

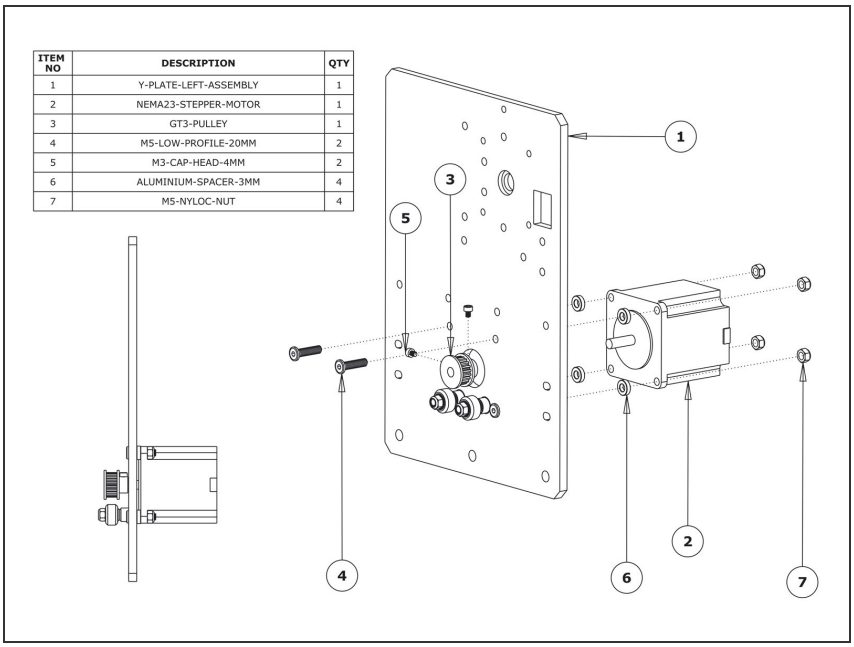


Step 1 — Belt Idlers



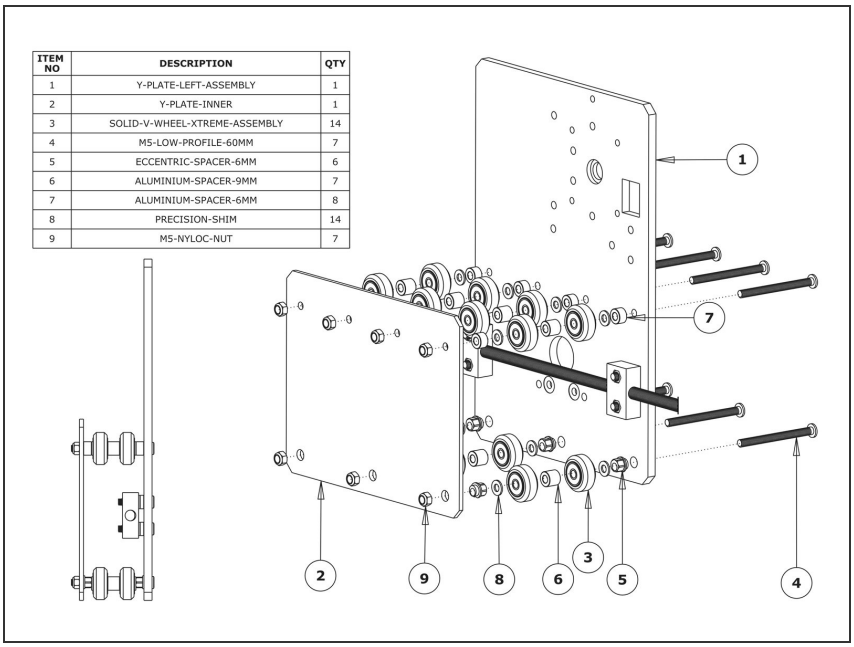
- With the Y-Plate-Left in the orientation seen in the picture, insert 2 x M5-Low-Profile-25mm Bolts from the back side through the only two holes that are inset.
- Next to each M5-Low-Profile-25mm bolt, you can see that there is a non-inset hole. From the front, insert a M5-Low-Profile-20mm Bolt through each of these holes.
  - ⓘ These M5-Low-Profile-20mm Bolts will be used in the next section to attach the NEMA23-Stepper-Motor.
- On to each M5-Low-Profile-25mm bolt, place 1 x Aluminium-Spacer-6mm, 2 x Mini-V-Precision-Shims, 1 x Mini-V-Wheel-Assembly and a 1 x M5-Nyloc-Nut in this order. Tighten the whole assembly; insure that the Mini-V-Wheels still spin freely.

Step 2 — Stepper Motor



- Attach a NEMA23-Stepper-Motor to the Y-Plate-Left using 4 x M5-Low-Profile-20mm Bolts (two should have been already inserted in Step 1) and 4 x M5-Nyloc-Nuts. Make sure you place an Aluminium-Spacer-3mm in-between the NEMA23-Stepper Motor and the Y-Plate-Left on each M5-Low-Profile-20mm Bolt.
  - ⓘ The NEMA23-Stepper-Motor should be orientated so that the wire side is facing towards the back of the Y Plate-Left (the side closest to the small rectangle opening).
- Attach a GT3-Pulley to the NEMA23-Stepper-Motor shaft using 2 x M3-Cap-Head 4mm Bolts. One of these bolts should be tightened on to the flat portion of the NEMA23-Stepper-Motor shaft. The toothed section of the GT3-Pulley should be centralized to the Mini-V-Wheel-Assembly's attached in Step 1.

Step 3 — Y Wheels & Y-Plate-Inner

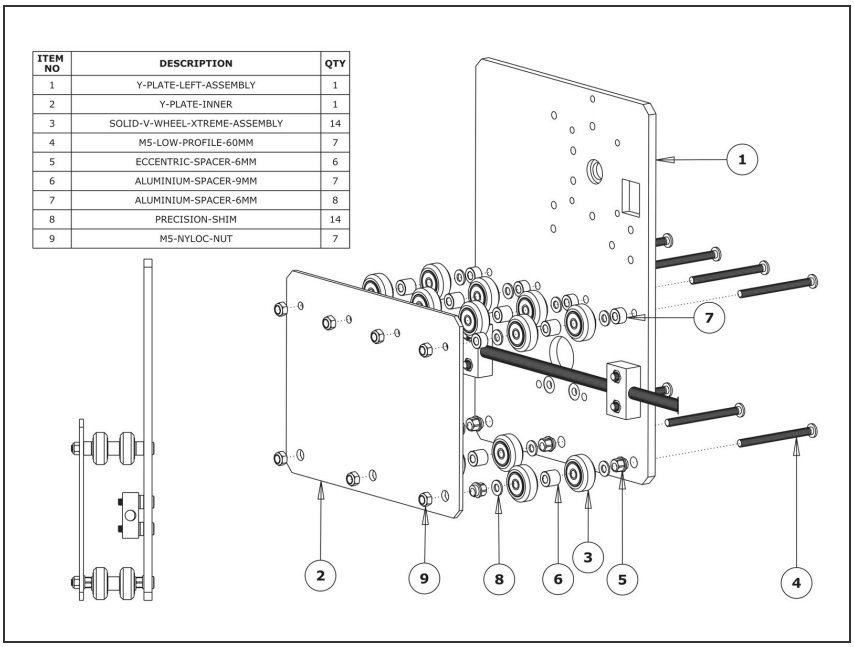


ITEM NO	DESCRIPTION	QTY
1	Y-PLATE-LEFT-ASSEMBLY	1
2	Y-PLATE-INNER	1
3	SOLID-V-WHEEL-XTREME-ASSEMBLY	14
4	M5-LOW-PROFILE-60MM	7
5	ECCENTRIC-SPACER-6MM	6
6	ALUMINIUM-SPACER-9MM	7
7	ALUMINIUM-SPACER-6MM	8
8	PRECISION-SHIM	14
9	M5-NYLOC-NUT	7

- First attach the bottom right wheel set; insert a M5-Low-Profile-60mm bolt through the Y-Plate-Left-Assembly from the back. On to this bolt, add an Eccentric-Spacer 6mm, Precision-Shim, Solid-V-Wheel-Xtreme-Assembly, Aluminium Spacer-9mm, Solid-V-Wheel-Xtreme-Assembly, Precision Shim, and a Eccentric-Spacer-6mm in this order.
  - Next, add a Y-Plate-Inner onto the top of this assemblage, and then slightly thread on a M5-Nyloc-Nut. The rounded portion of the Eccentric-Spacer-6mm should be inserted into the hole on either the Y-Plate-Left-Assembly or Y-Plate-Inner (depending on which side it is on).
  - Repeat for the other two wheel sets on the bottom row.
  - Repeat for the 4 wheel sets on the top row, however for these sets use Aluminium-Spacer-6mms instead of Eccentric-Spacer-6mms.

- Once all of the wheels are attached the M5-Nyloc-Nuts can be tightened down. Ensure that the Solid-V-Xtreme-Wheels can still rotate freely. On the hexagonal portion of the Eccentric-Spacer-6mm, there will be one face that is marked with ‘6mm’.
- Using a spanner, adjust each Eccentric-Spacer-6mm so that this face is facing downwards. Doing this maximizes the gap between the top and bottom row of wheels.

Step 4 — Adjusting Y Wheels



ITEM NO	DESCRIPTION	QTY
1	Y-PLATE-LEFT-ASSEMBLY	1
2	Y-PLATE-INNER	1
3	SOLID-V-WHEEL-XTREME-ASSEMBLY	14
4	M5-LOW-PROFILE-60MM	7
5	ECCENTRIC-SPACER-6MM	6
6	ALUMINIUM-SPACER-9MM	7
7	ALUMINIUM-SPACER-6MM	8
8	PRECISION-SHIM	14
9	M5-NYLOC-NUT	7

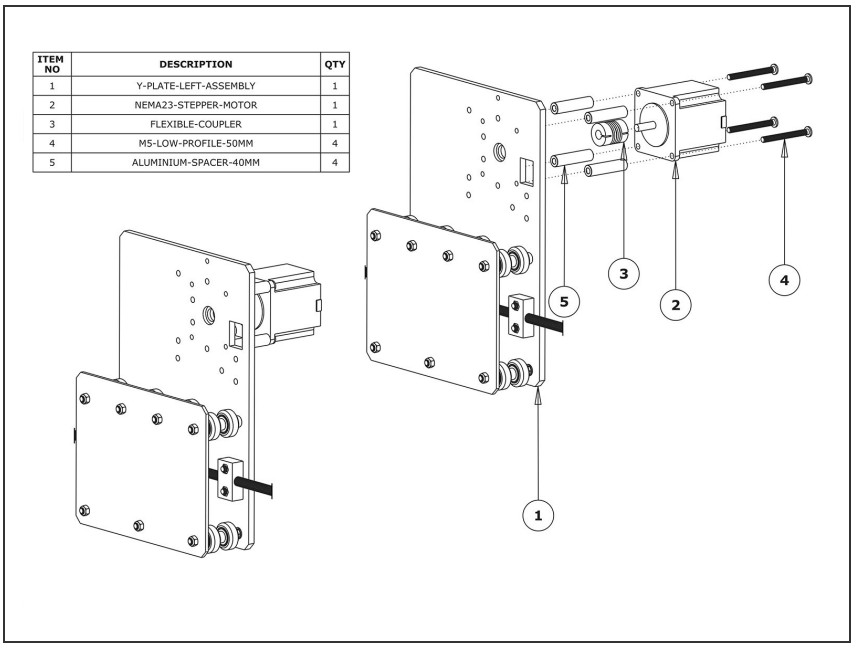
- Run any piece of C-Beam extrusion in between the two rows of wheels. Initially, the C-Beam will wobble between the wheels. Turn the assembly upside down so the C-Beam is sitting on the row of wheels with the Aluminium-Spacer-6mms.
  - Starting with an outside pair of wheels, adjust both Eccentric-Spacer-6mms down onto the C-Beam Extrusion until there is a small amount of friction between both wheels and the C-Beam Extrusion.

- When adjusting the pair of Eccentric-Spacer-6mms ideally they should be adjusted identically. However, sometimes one will need to be adjusted slightly more than the other to get both wheels engaged with the C-Beam extrusion.
- Repeat for the other outside pair of wheels, and then again for the middle pair.

- Slide the C-Beam extrusion back and forth through the wheels. This should require a small amount of force, and all wheels should spin as it rolls. Also check there is no wobbling of the extrusion. Once happy, double check the tightness of the M5-Nyloc Nuts.

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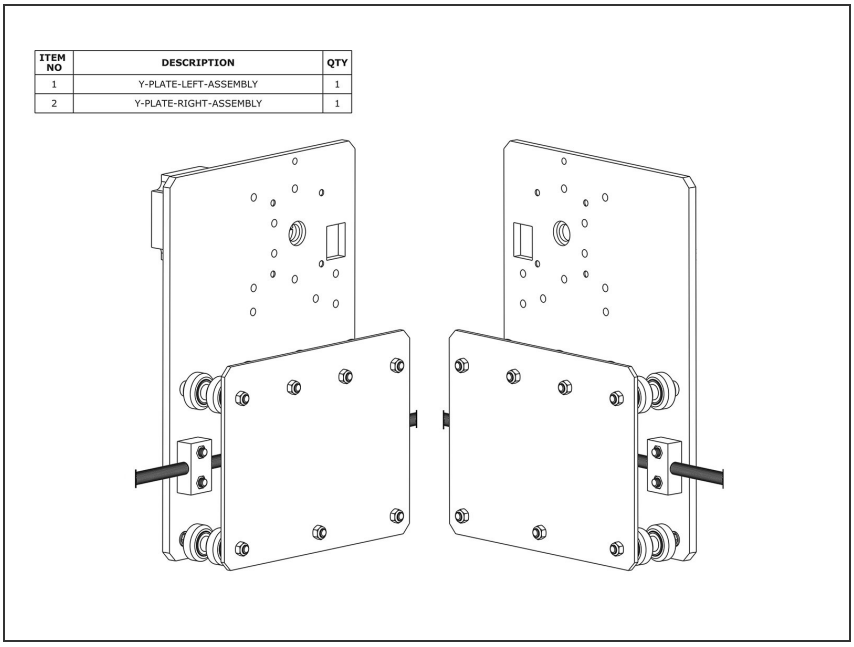
Step 5 — X-Axis Stepper Motor



- Slide the 1/4” side (the side with the smallest hole) of the Flexible-Coupler onto the shaft of the NEMA23-Stepper-Motor. Don’t tighten it down at this point.
- Attach the NEMA23-Stepper-Motor to the threaded holes on the Y-Plate-Left using 4 x M5-Low-Profile-50mm bolts and 4 x Aluminium-Spacer-40mm’s.

ⓘ Orient the NEMA23- Stepper-Motor so that the wire is towards the back of the Y-Plate-Left (the side closet to the small rectangle opening).

Step 6 — Repeat



- Repeat Steps 1-4 for the Y-Plate-Right. As seen above, it should be a mirror image of the Y-Plate-Left-Assembly.

⚠ Do not repeat Step 5

Thanks for following the guide. Any issues, please contact us!

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