Z axis assembly

As with the Y axis, the Z axis is assembled in stages, starting with small sub-assemblies which are brought together towards the end.

Contents [hide]

Z axis sub-assemblies

z-motor-mount

Begin with the z-motor-mount. You will need the following parts:

Component	Type	Quantity
z-motor-brace	Printed	1
NEMA17 stepper motor	-	1
M3x8mm countersunk socket screw	Fastener	1
M3 washer	Fastener	1
623 bearing	Hardware	1
M3x12mm countersunk socket screw	Fastener	3
M4x12mm countersunk socket screw	Fastener	3
M4 T-nut	Fastener	3

Begin with the Z motor bearing, which is secured with an M3x8mm countersunk socket screw. The M3 washer goes between the bearing and the motor body; check the bearing can rotate freely.

Screw the z-motor-brace to the stepper motor using the M3x12mm countersunk screws, then loosely fit the M4 T-nuts with the M4x12mm countersunk screws, as shown.

z-lower-mount

The z-lower-mount sub-assembly requires the following:

Component	Type	Quantity
z-lower-mount	Printed	1
M4x12mm countersunk socket screw	Fastener	3
M4 T-nut	Fastener	3

Loosely fit the M4 T-nuts as shown

z-upper-mount

The z-upper-mount sub-assembly requires the following:

Component	Type	Quantity
z-upper-mount	Printed	1
M3x35mm cap head screw	Fastener	1
M3 nut	Fastener	1

Fit the M3 screw and nut as shown.

z-corner-bracket

The z-corner-bracket sub-assembly requires the following:

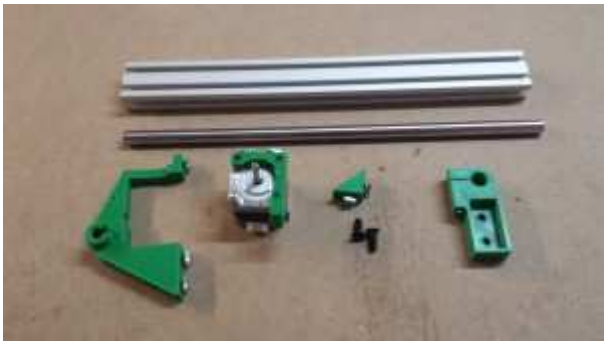
Component	Type	Quantity
z-corner-bracket	Printed	1
M4x12mm countersunk socket screw	Fastener	2
M4 T-nut	Fastener	2

Now loosely fit two M4 T-nuts using M4x12mm countersunk socket screws into the z-corner-bracket.

Z axis assembly

You can now bring all of the Z axis sub-assemblies together, using the following parts:

Component	Type	Quantity
z-motor-mount	Assembled	1
z-lower-mount	Assembled	1
z-upper-mount	Assembled	1
z-corner-bracket	Assembled	1
LM12UU linear bearing (not shown)	Hardware	2
Smooth rod 12x350mm	Hardware	1
Aluminium extrusion	Hardware	1
M6x16mm countersunk socket screw	Fastener	2



NOTE: THERE IS NO NEED TO SLIDE THE T-NUT IN FROM THE END OF THE ALUMINIUM EXTRUSION!
The M4 T-nuts are designed to drop into the extrusion slot. As the retaining screw is tightened, the T-nut rotates in the slot and locks into place.

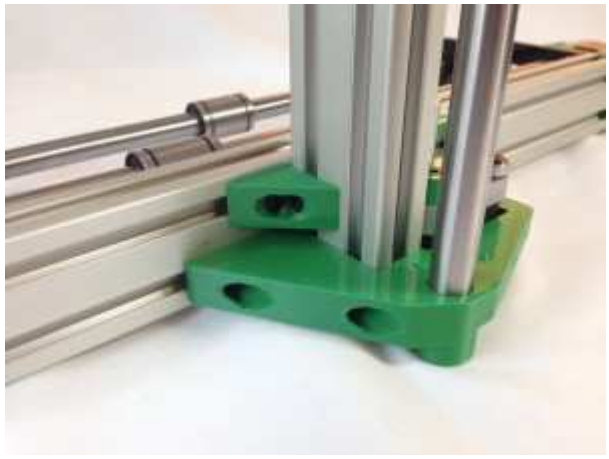
Start by putting the z-upper-mount on the aluminium extrusion – it's a tight fit. Secure it using two M6x16mm countersunk screws. Then fit the Z motor sub-assembly to the extrusion. The M4 T-nuts should not be done too tight at this stage; just enough to hold the Z motor to the extrusion.

Now fit the rest of the Z axis parts as shown. Fit the 12mm smooth rod into the z-upper-mount, and slide the LM12UU bearings on. Then put on the z-lower-mount and z-corner-bracket. Use the other pictures below for reference.

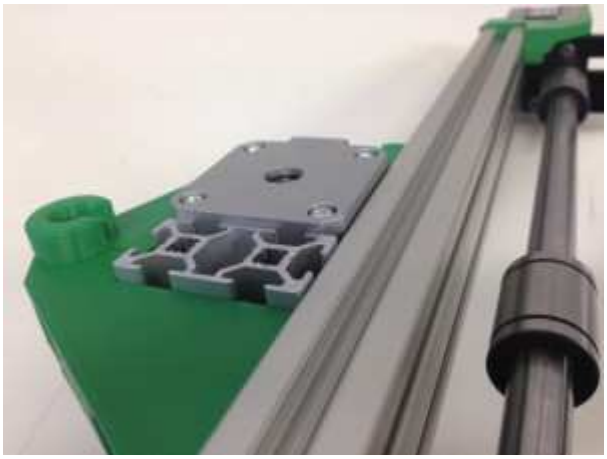
Connecting the Z axis assembly to the Y axis assembly

The Z axis assembly can now be attached to the Y axis assembly. Orientate the Z nuts so they drop into the extrusion, you don't need to slide it on from the end.

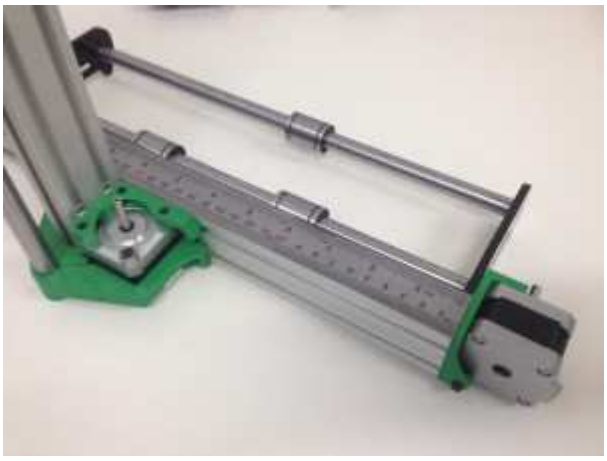
As you tighten the M4 countersunk screws, the T-nut should rotate 90 degrees and catch in the extrusion slot. They may need a wiggle to get them to turn. Assemble loosely to start with, so you can move the components to the correct places.



The base of the vertical Aluminium extrusion must be flush with the bottom of the Y axis extrusion. The bottom of the motor will be a little below the level of the extrusions.

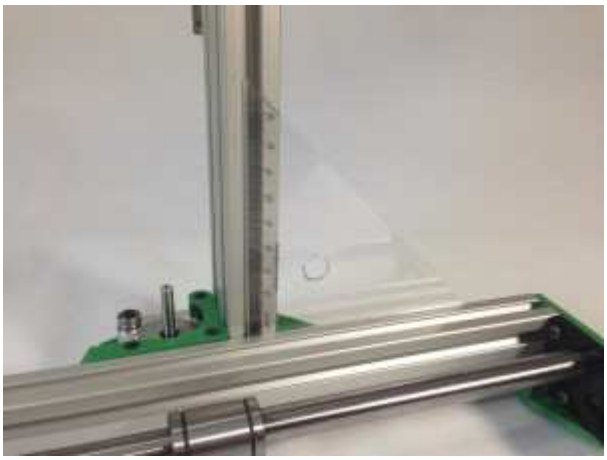


On the Y axis motor side, the face of the Z axis aluminium extrusion should be 210mm from the end of the Y axis aluminium extrusion.



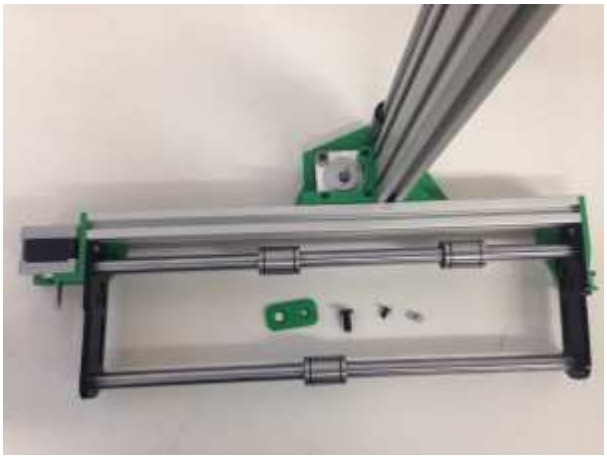
On the Y axis idler side, the face of the Z axis aluminium extrusion should be 120mm from the end of the Y axis aluminium extrusion.

Use the supplied set square to check the Z axis and Y axis extrusions are at right angles to each other, before finally tightening of the screws. Repeat the above alignment steps to confirm they are all correct, before tightening all the fasteners.



Attaching the Z-foot

Component	Type	Quantity
ZY assembly	Assembled	1
z-foot	Printed	1
M6x16mm countersunk socket screw	Fastener	1
M4x8mm countersunk socket screw	Fastener	1
M4 T-nut	Fastener	1



The base of the vertical Aluminium extrusion must be flush with the bottom of the Y axis extrusion. These two can then be secured using the z-foot, one M6x16mm countersunk socket screw, and an M4 T-nut and M4x8mm countersunk socket screw.