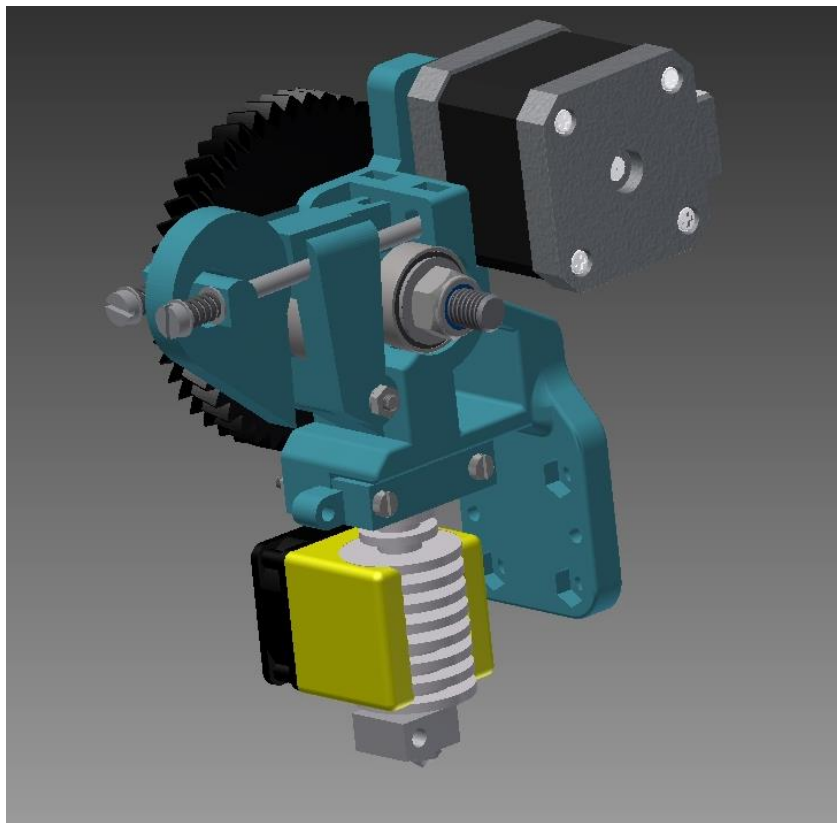


# DIYElectronics

## CharlStruder Assembly Instructions



Please refer to the last page for the full exploded diagram and component list!

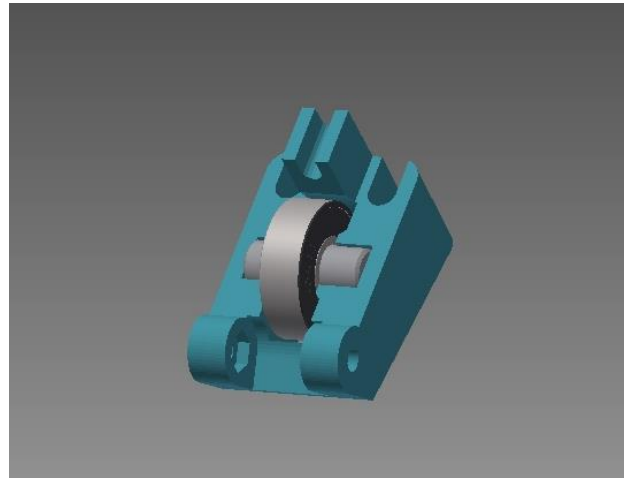
### Step 1

Components needed:

- Birdnose guider
- M8x20mm idler axle
- 1x 608 bearing

Slide the 20mm idler axle through the 608 bearing and press fit into the slot of the birdnose guider. This fit is quite tight and a mallet or vice might be needed to be coaxed it in.

Make sure that the bearing spins with relative ease.

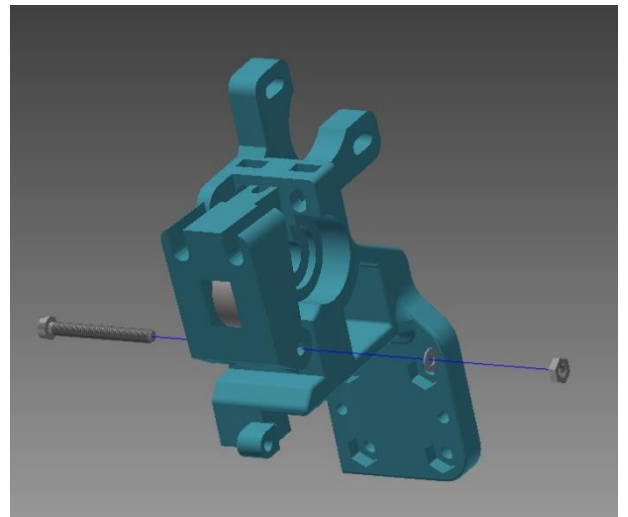


### Step 2

- Extruder body
- 1x M3x30 machine screw
- 1x M3 washer
- 1x M3 nut

Connect the guider assembly from above to the extruder body with an M3x30 machine screw and secure on the other end with an M3 washer and nut.

The guider needs to be able to freely pivot.

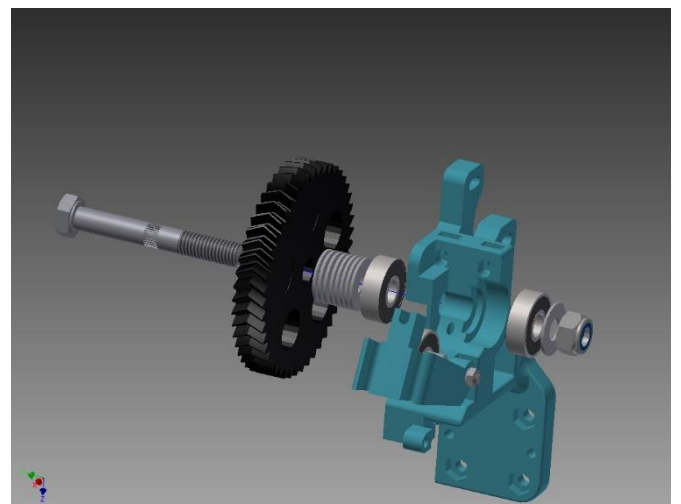


### Step 3

- 1x M8 hobbed bolt
- 1x big printed gear
- 2x 608 bearings
- M8 Washers
- 1x M8 nyloc nut

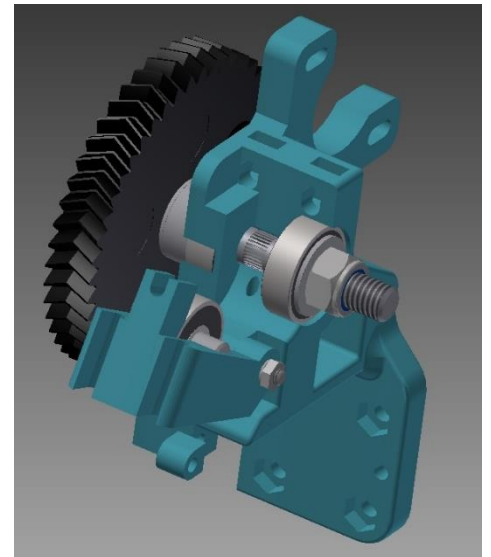
Slide the hobbed bolt through the big gear, followed by about 4 to 6 washers and a 608 bearing.

Slide this arrangement through the hole of the extruder body, where another bearing, single washer and M8 nyloc nut need to be placed on the hobbed bolt's end. This order can be seen in the picture.



Tighten the nyloc nut until both bearings are press-fit securely into their captive slots and until the gear rotates with relative ease.

**NOTE:** it is extremely important that the hobbed part of the bolt is centred and aligned with the filament hole (as shown in the picture to the right). If this is not centred you will need to add or remove the washers in-between the gear and bearing until you get this right.



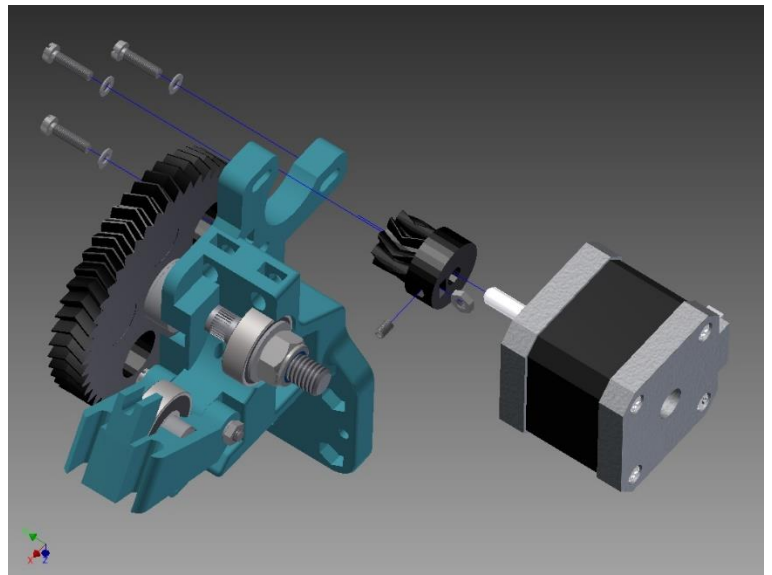
#### Step 4

- Nema17 stepper motor
- Small printer gear (pinion)
- 1x M3 grub screw
- 3x M3x12 machine screws
- 3x M3 washers
- 4x M3 nuts

First you need to drill out the centre of the printed pinion gear with an M5 drill bit.

Press fit an M3 captive nut into the base of the pinion gear far enough so that the M3 grub screw can screw into it.

Then press fit this pinion gear onto the stepper motor shaft. Secure it with the M3 grub screw.



Secure the stepper motor to the body of the extruder using three M3x12 machine screws and washers as shown in the above picture.

Make sure that the teeth of the pinion and gear line up properly. You may need to adjust the pinion position on the motor shaft and the motor's three M3 screws connecting it to the extruder body.

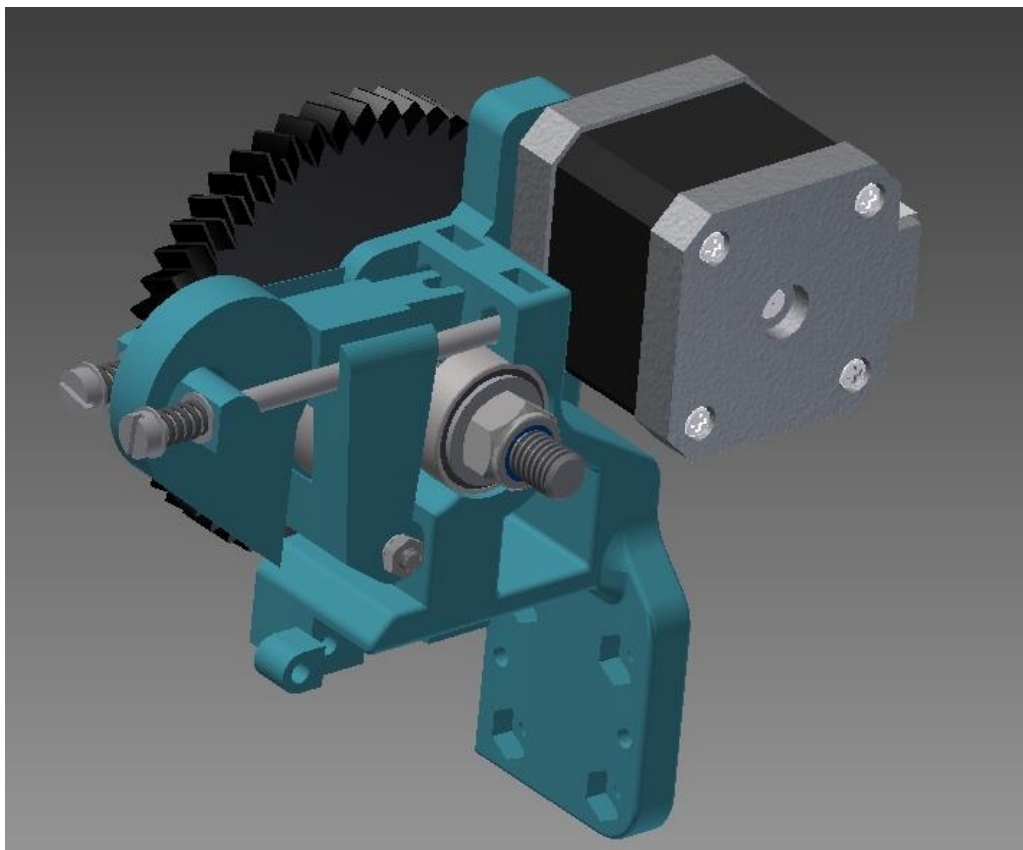
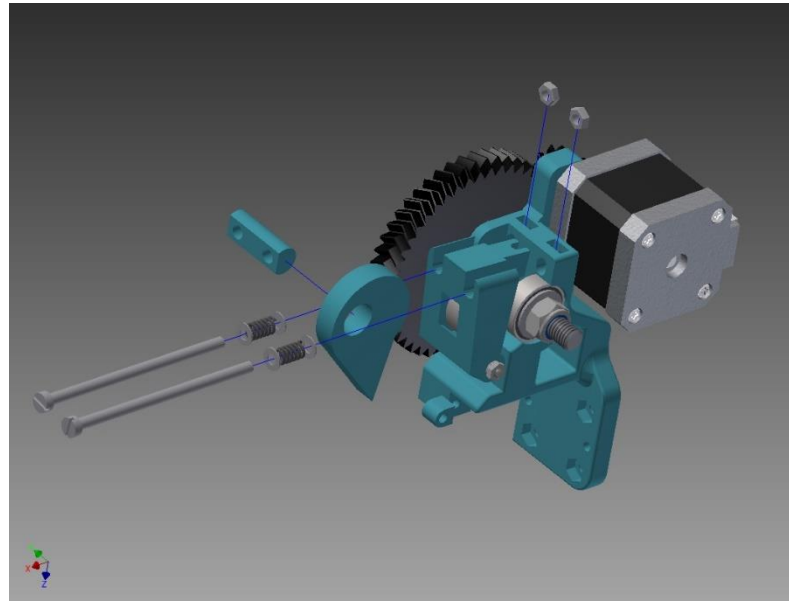
Once all of this is done your extruder should at this stage look like the image to the right.



### Step 5

It is now time to attach the birdnose cam tensioner as seen in the images below

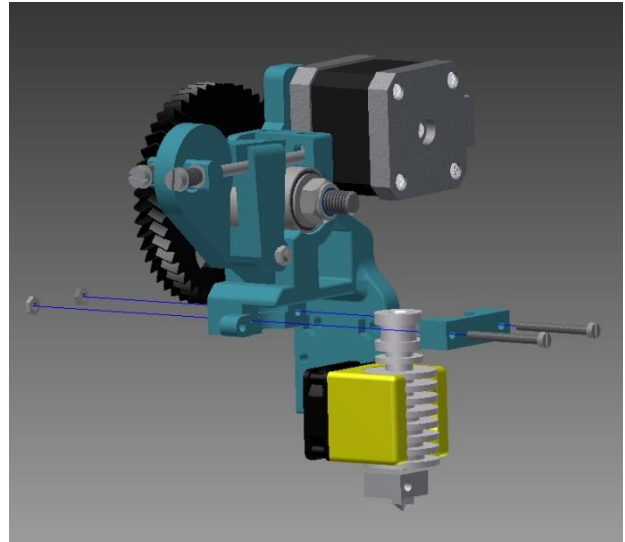
- 1x printed birdnose cam tensioner
- 1x printed birdnose shaft
- 2x M4x75mm machine screws
- 2x springs
- 4x M4 washers
- 2x M4 nuts



### Step 6

- Hot end assembly (All Metal or J-head)
- 1x printed hotend clamp
- 2x M3x30 machine screws
- 2x M3 nuts

Clamp the hot end into place using the printed clamp, machine screws and nuts. Fasten tightly.



### Final Complete Assembly!

Now all you need to do is attach the extruder to the X-axis carriage via the 4 hole spaces on the main extruder block OR the 2 hole spaces depending which carriage you have.

Enjoy!! ☺

