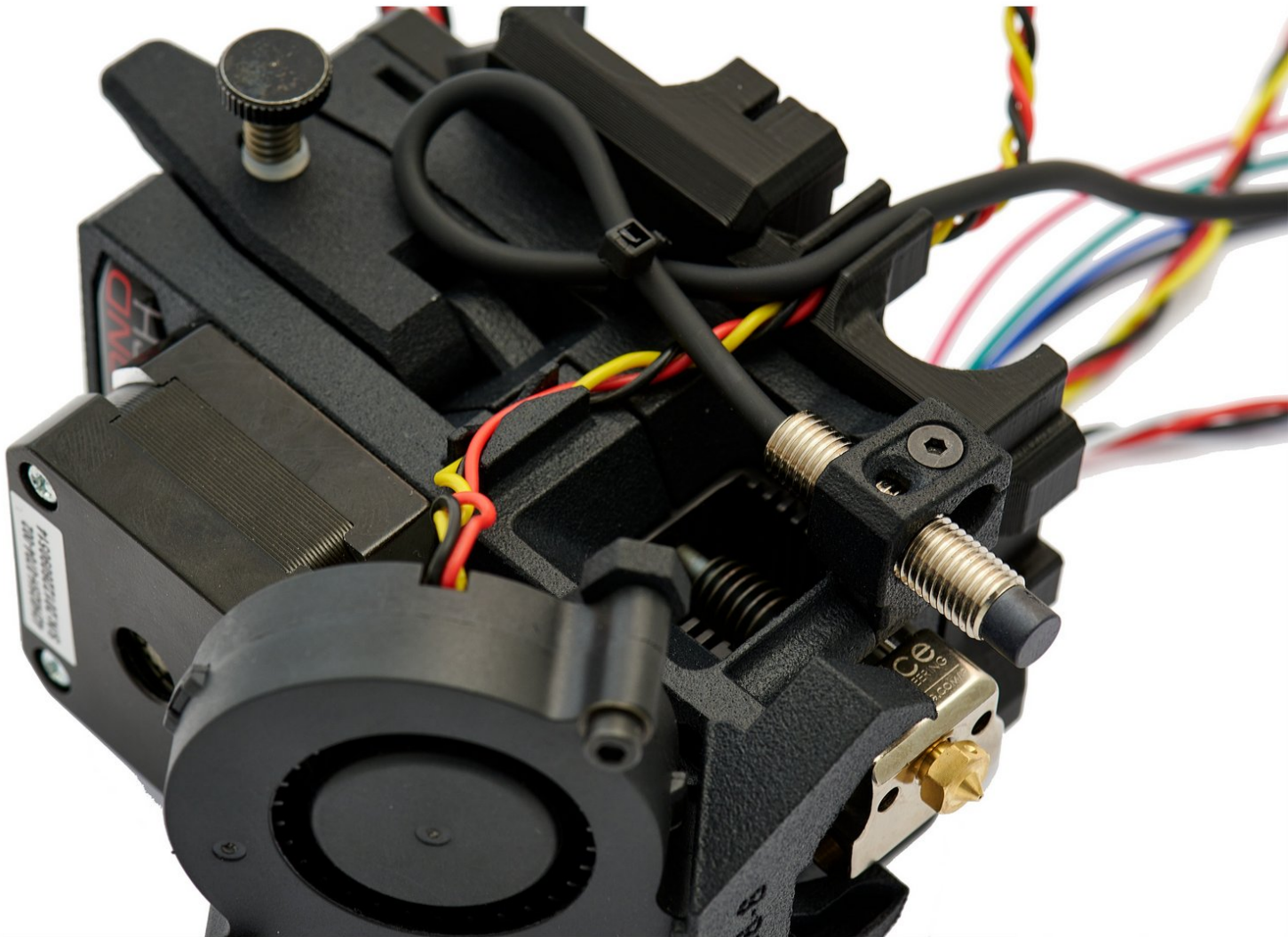


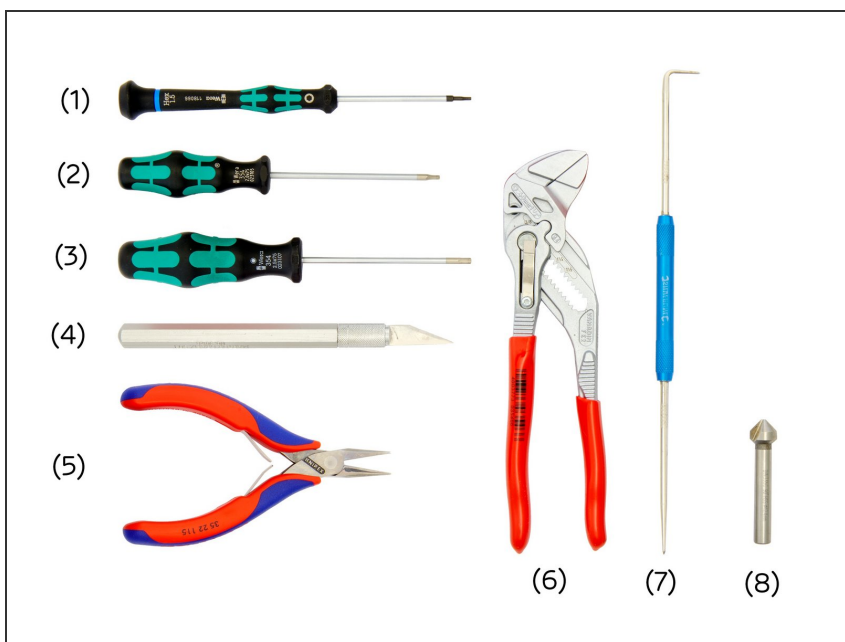
caribou3d

# 15.1. Assembly of the Bondtech MK3S Mosquito Extruder

Written By: Katja Aller



## Step 1 — Required Tools (1 / 2)



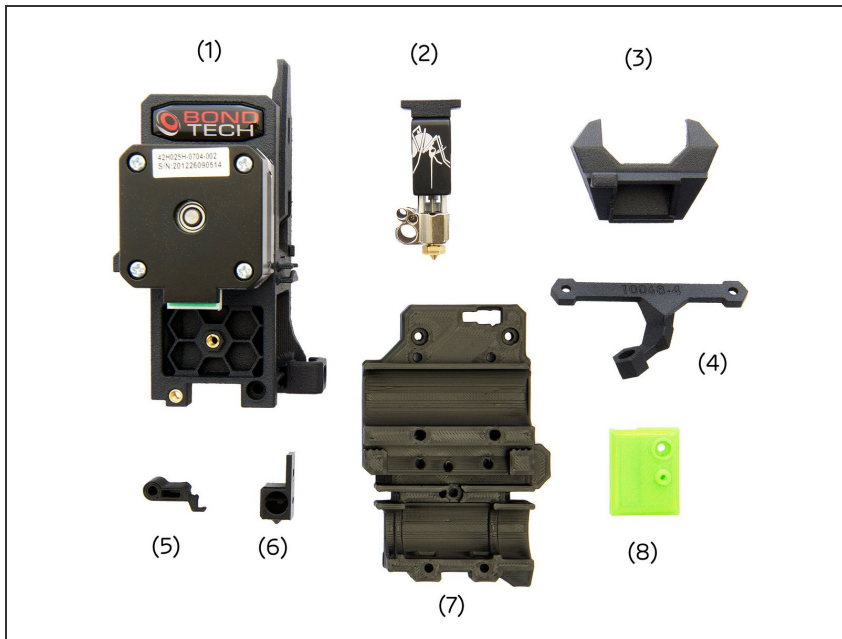
- (1) [1.5x60mm Hexagon Socket Head Screwdriver for Electronic Applications](#)
- (2) [2.0x75mm Hexagonal Screwdriver](#)
- (3) [2.5x75mm Hexagonal Screwdriver](#)
- (4) Scalpel
- (5) [Electronics Pliers](#)
- (6) [Pliers Wrench](#)
- (7) [Engineer Scriber](#)
- (8) Countersink

## Step 2 — Required Tools (2 / 2)



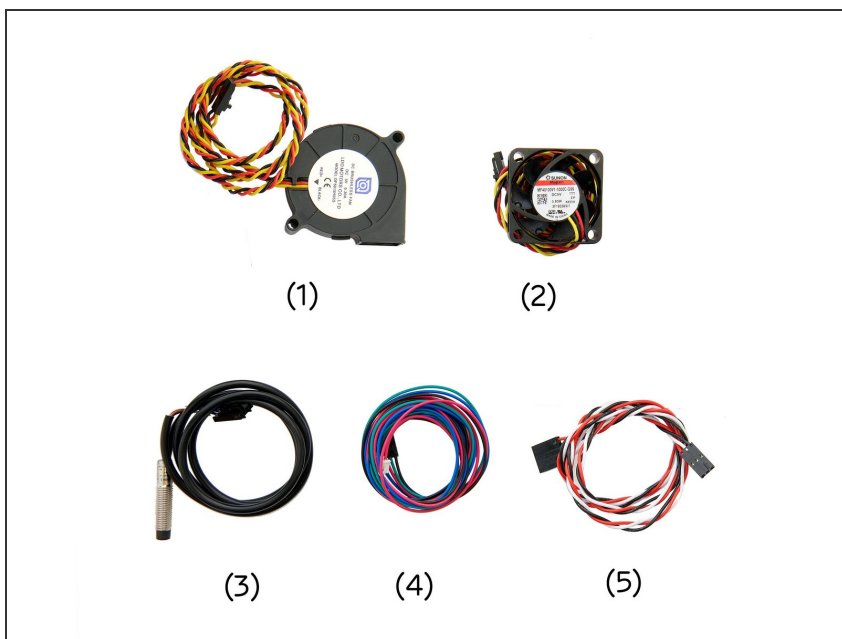
- (1) Superglue
- (2) [Zip Ties](#)

### Step 3 — Assembling the Parts (1 / 3)



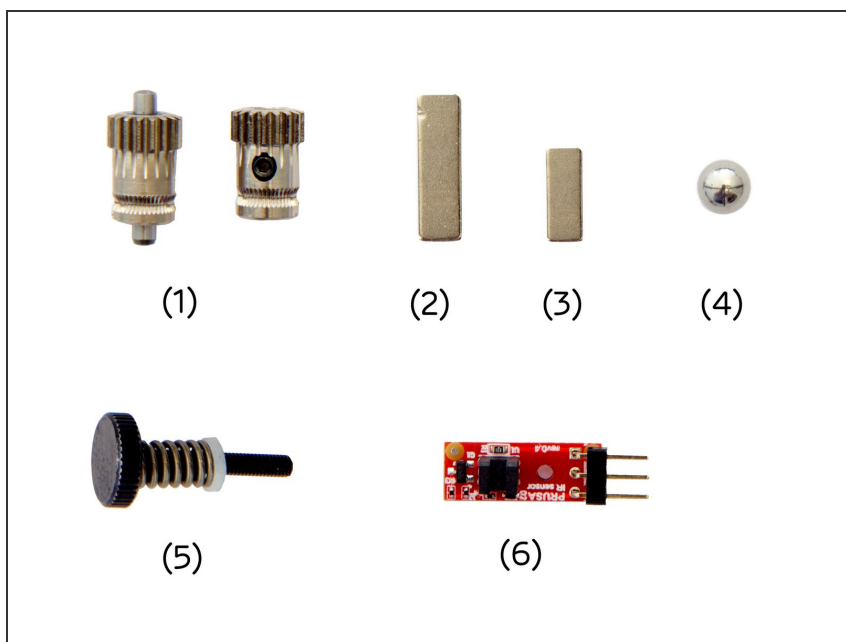
- (1) [Bondtech MK3S/ MK2.5 Mosquito Extruder](#)
- (2) Slice Engineering Hotend [Mosquito/ Mosquito Magnum](#) (see manual [14.1.](#))
- (3) Fan Shroud (Lüfterauslass)
- (4) Fan Holder
- (5) Lever
- (6) Ball Holder
- (7) x-Carriage
- (8) Sensor Cover

### Step 4 — Assembling the Parts (2 / 3)



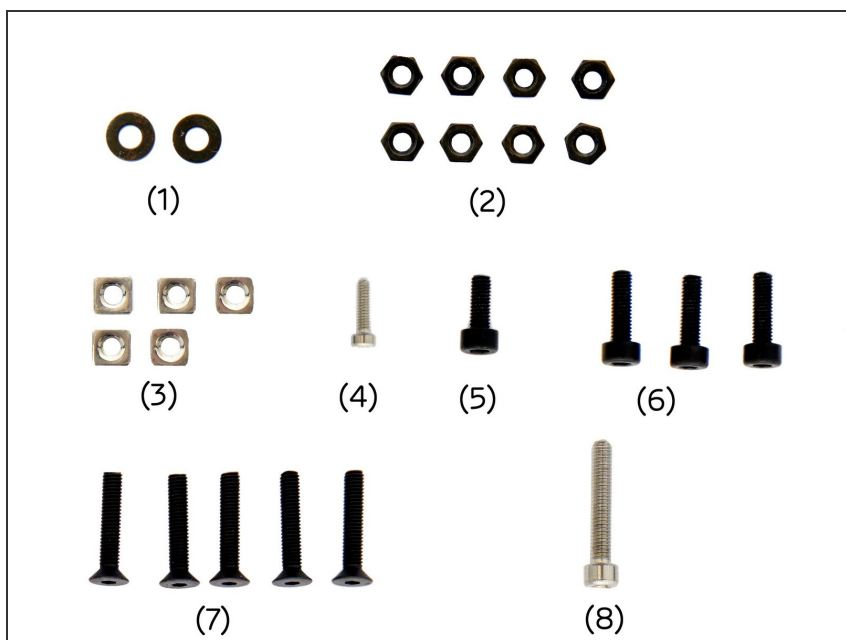
- (1) [Radial Fan](#)
- (2) [Sunon Fan](#)
- (3) [SuperPINDA / Pinda 2](#)
- (4) [Filament Sensor Extension Cable](#)
- (5) Motor Cable

## Step 5 — Assembling the Parts (3 / 3)



- (1) [Bondtech Drivegear](#)
- (2) [Long Magnet](#)
- (3) [Short Magnet](#)
- (4) [7mm Steel Ball](#)
- (5) [Thumbscrew Assembly](#)
- (6) [Filament Sensor](#)

## Step 6 — Required Screws (1 / 2)



- (1) **2x** Black Washers
- (2) **8x** [M3 Nuts](#)
- (3) **5x** [M3 Square Nuts](#)
- (4) [M2x12mm Hexagon Socket Head Cap Screw \(silver\)](#)
- (5) [M3x8mm Hexagon Socket Head Cap Screw](#)
- (6) **3x** [M3x10mm Hexagon Socket Head Cap Screws](#)
- (7) **5x** [M3x16mm Flat Head-Head Socket Cap Screws](#)
- (8) [M3x18mm Hexagon Socket Head Cap Screw \(silver\)](#)

## Step 7 — Required Screws (2 / 2)



(1)



(2)



(3)

- (1) **2x** [M3x20mm Hexagon Socket Head Cap Screws](#)
- (2) [M3x35mm Hexagon Socket Head Cap Screw](#)
- (4) [M3x40mm Hexagon Socket Head Cap Screw](#)

## Step 8 — Installing the Magnets (1 / 2)



- Open the extruder.
- Insert the small magnet into the lever.
- If the magnet is loose, fix it with a little super glue. If the magnet is difficult to insert, we recommend using a pliers wrench.
- Place the lever in the extruder back (the one without motor) and secure it with a **M3x18mm Hexagon Socket Head Cap Screw (silver)**.
- Now, loosen the screw until the lever can be moved freely.



## Step 9 — Installing the Magnets (2 / 2)



- Insert the long magnet into the slot to the left of the lever.

**⚠ Make sure that the two magnets repel each other.**

- If the magnet is still movable in the slot, fix it with super glue.
- ① You can now test the mobility of the lever through the opening for the filament.

## Step 10 — Installing the Filament Sensor (1 / 2)

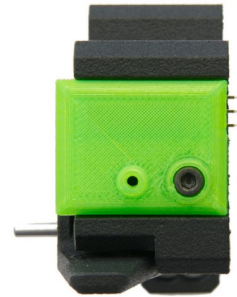


- ① Take the ball holder and check the hole for filament residues. If there are any residues, remove them carefully (e.g. with a scalpel).

- Insert the 7mm steel ball into the holder.
- Insert the holder with ball into the top of the extruder back.

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## Step 11 — Installing the Filament Sensor (2 / 2)



- Insert the filament sensor and secure it with the **M2x8mm Hexagon Socket Head Cap Screw (silver)**.
- Test the mobility of the lever again.
  - ❗ If the lever's mobility is compromised, loosen the screw on the filament sensor minimally or check the lever for filament residue, removing it if necessary.
- Test the mobility of the lever again.
- Now, place the sensor cover on top and secure it with a **M3x10mm Hexagon Socket Head Cap Screw**.

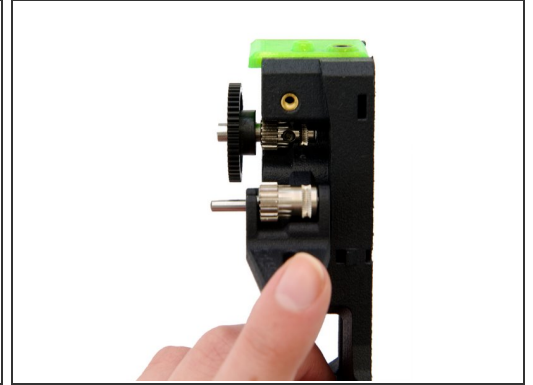


## Step 12 — Installing the Drive Gear (1 / 2)



- Remove the hinge and shaft from the back of the extruder.
- Align the gear (with the shaft) in the hinge as shown in Fig. 2 and press the shaft down until it engages.
- Carefully press the shaft into position with a pliers wrench.
- Re-assemble the hinge with the shaft to the back of the extruder.

## Step 13 — Installing the Drive Gear (2 / 2)



- Remove the shaft assembly from the front of the extruder.
- Slide the gear onto the shaft and make sure that the M2 grub screw is aligned with the flat side of the shaft.
- Tighten the screw so that the gear can only move up and down.
- Insert the shaft assembly into the back of the extruder next to the hinge.

**⚠ Make sure that there is a ball bearing (5x8x.2.5) in the cavity for the shaft.**

- Align the grooves in the gear to match the filament path and tighten the M2 grub screw.

## Step 14 — Preparing the Front Part



- Insert a **M3 Square Nut** into the hole, in the center of the extruder back. Make sure that the square nut is inside the left slot.
- Remove shaft assembly from the back of the extruder and insert into the front of the extruder.  
**⚠ Make sure that there is a ball bearing (5x8x.2.5) in the cavity for the shaft.**

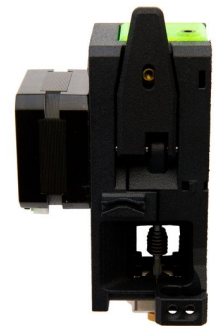
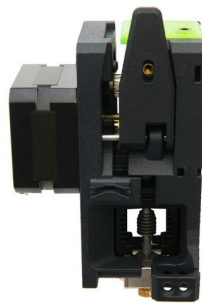
## Step 15 — Installing the Hotend



- Place your Mosquito/ Mosquito Magnum Hotend built in Manual 14.1. into the back of your extruder.

⚠ Make sure all components are seated properly before proceeding.

## Step 16 — Assembling the Front and Back Parts (1 / 2)



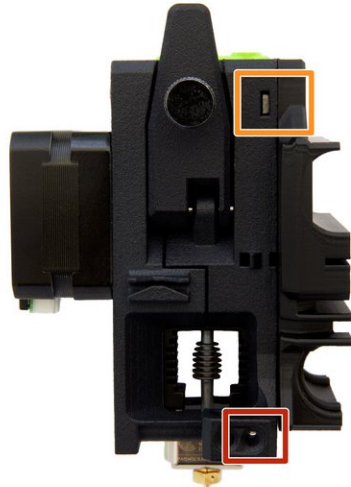
- Now, put the front and back of the extruder together.
- At the bottom of the front of the extruder, screw a **M3x35mm Hexagon Socket Head Cap Screw** through the extruder.

## Step 17 — Assembling the Front and Back Parts (2 / 2)



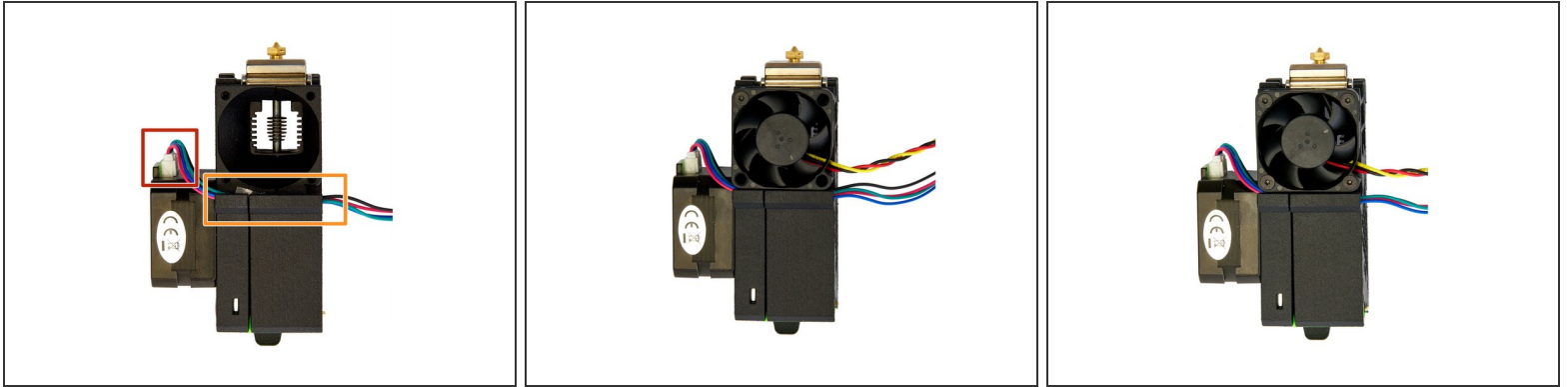
- At the bottom of the front of the extruder, screw a **M3x35mm Hexagon Socket Head Cap Screw** through the extruder.

## Step 18 — Inserting the Thumbscrew Assembly



- Install the **Thumbscrew**. Tighten the thumbscrew as much as possible and then loosen it again by 2-3 turns.
- Insert a **M3 Square Nut** at the bottom of the back of the extruder.
- Insert a **M3 Square Nut** into the top left corner of the back of the extruder.

## Step 19 — Installing the Extruder-Fan



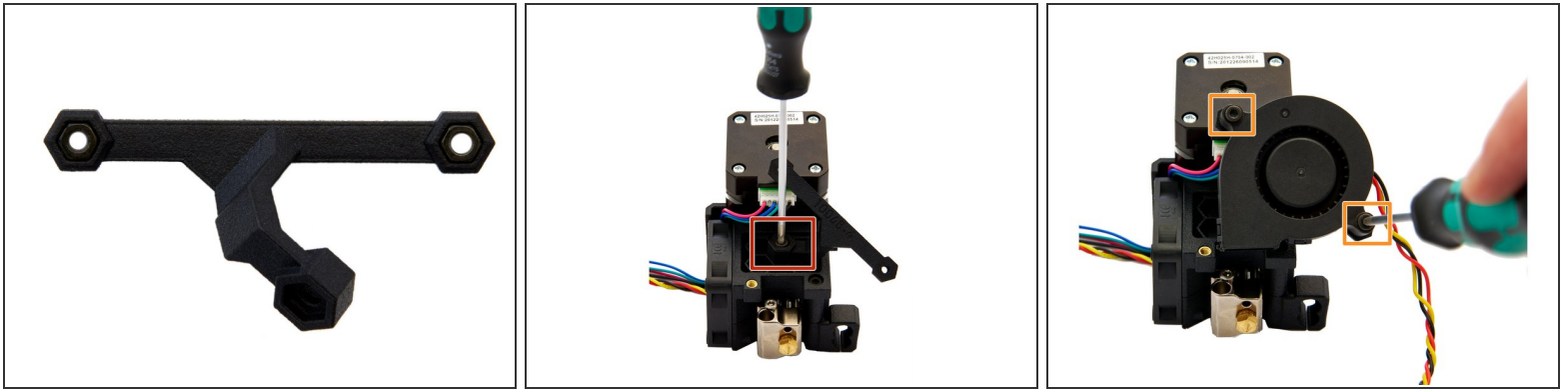
**⚠ On the Sunon Fan, enlarge the four screw holes with a countersink and remove the cable guide.**

- Plug the motor cable into the motor on the front of the extruder.
- Push the motor cables into the cavity.
- Place the Sunon Fan over it and be careful to not damage the cables.

**⚠ Pay attention to the orientation of the fan. The sticker on the fan must face inwards and the cable must come out to the rear.**

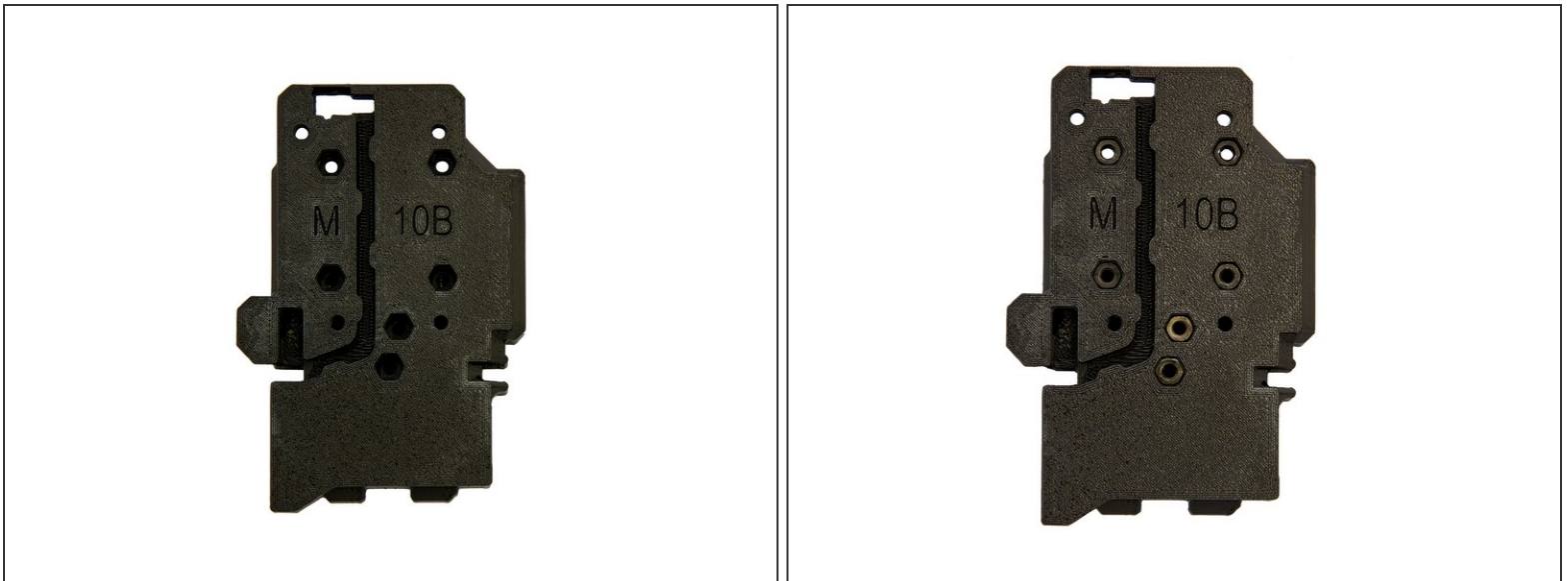
- Attach the Sunon Fan to the extruder using **4x M3x16mm Flat Head Screws**.

## Step 20 — Installing the Radial Fan



- Insert **2x M3 Nuts** into the fan holder.
- Attach the fan holder to the extruder with a **M3x10mm Hexagon Socket Head Cap Screw**.
- *Carefully* attach the **Radial Fan** to the extruder, using **2x Black Washers** and **2x M3x20mm Hexagon Socket Head Cap Screws**.

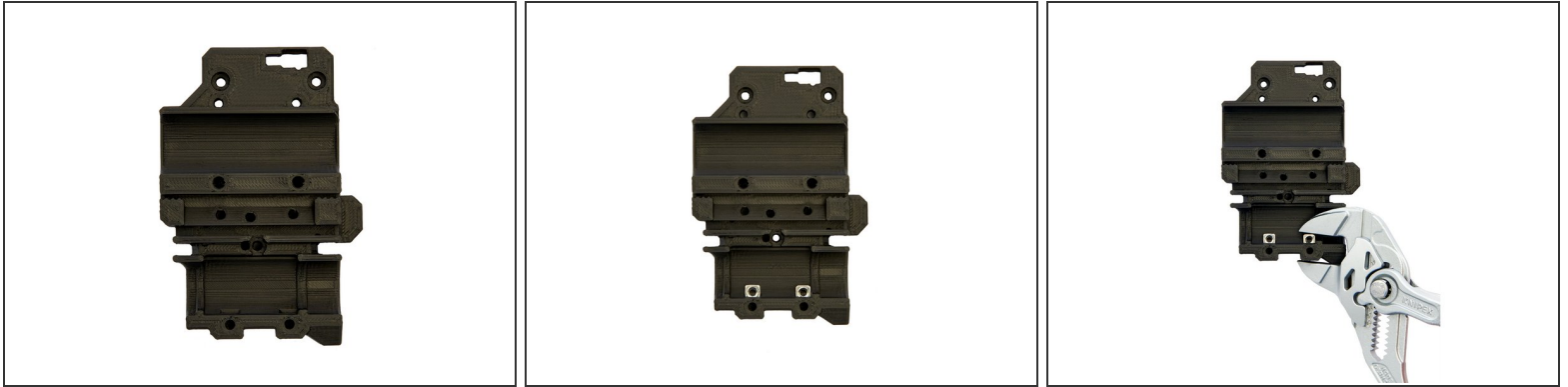
## Step 21 — Preparing the x-Carriage (1 / 2)



- Insert **6x M3 NUTs** into the back of the x-carriage.

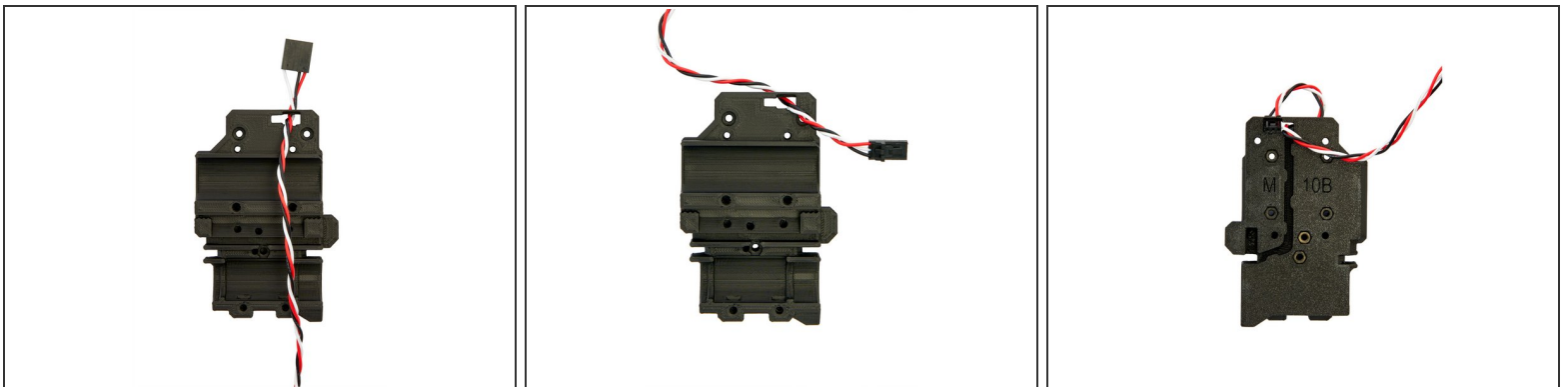


## Step 22 — Preparing the x-Carriage (2 / 2)



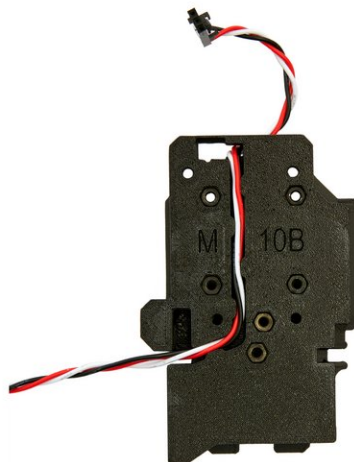
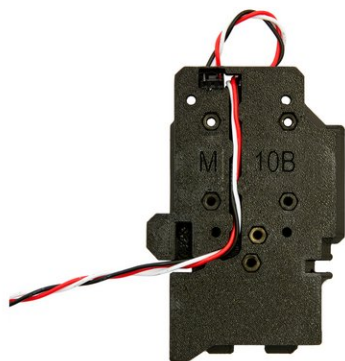
- Insert **2x M3 Square Nuts** into the bottom of the front of the x-carriage.

## Step 23 — Wiring the Filament Sensor (1 / 2)



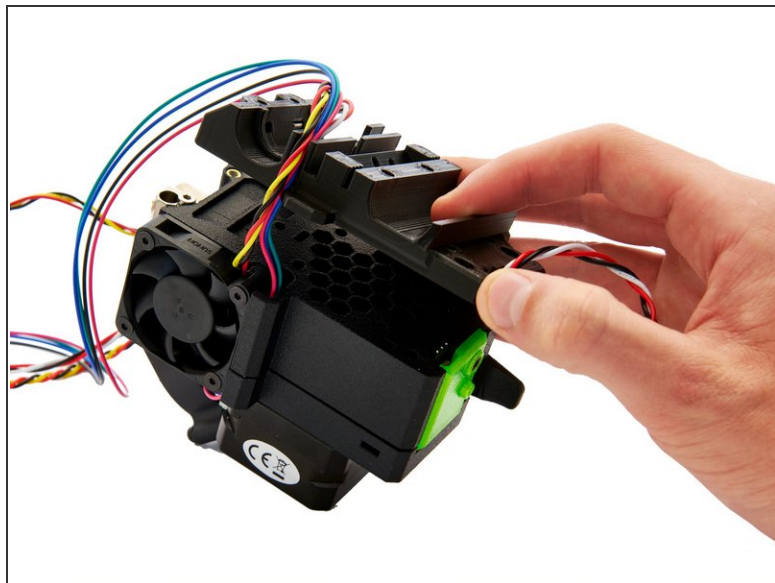
- Feed the filament sensor cable connector through the top slot in the x-carriage (Fig. 1).
- Pull the cable all the way through and insert the filament sensor cable connector (as shown in Figure 3) into the slot until it engages.

## Step 24 — Wiring the Filament Sensor (2 / 2)



- Now, feed the filament sensor cable through the cable guide in the back of the x-carriage.
- Finally, remove the filament sensor cable connector from the x-carriage to avoid damaging the filament sensor during the installation of the x-carriage.

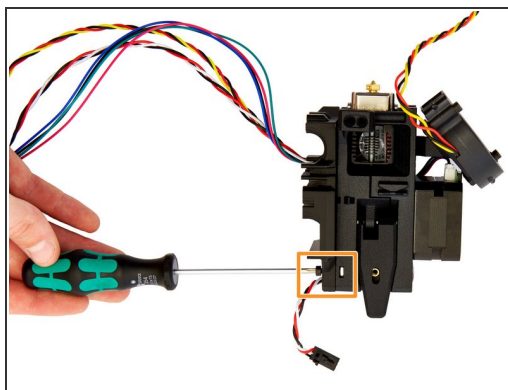
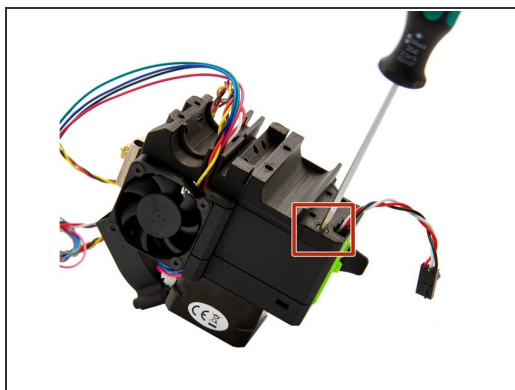
## Step 25 — Installing the x-Carriage (1 / 2)



- Place the x-carriage on the back of the extruder.

⚠ Be careful not to damage the filament sensor cable.

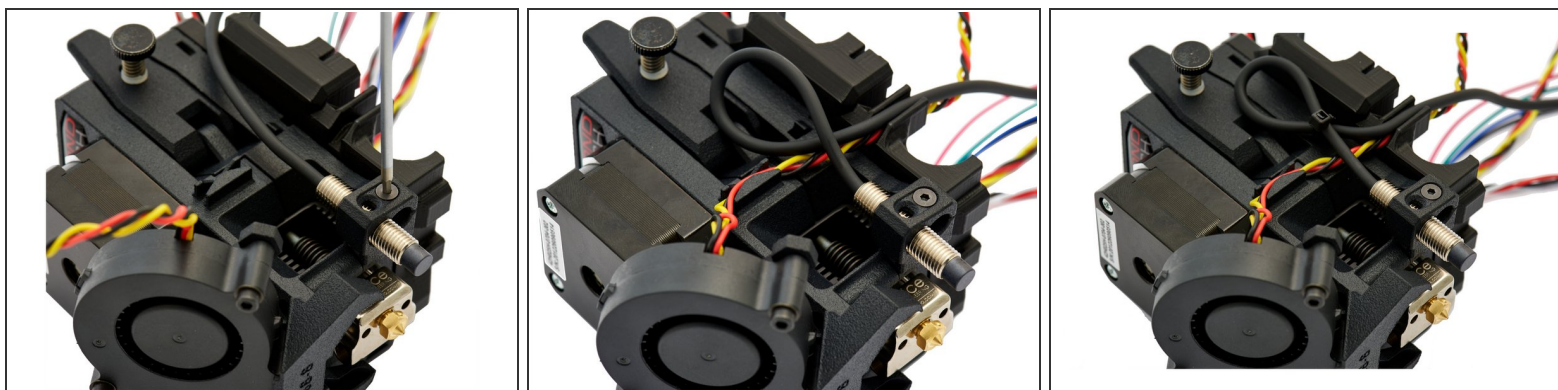
## Step 26 — Installing the x-Carriage (2 / 2)



- At the top right, the x-carriage is fastened with a **M3x40mm Hexagon Socket Head Cap Screw**.
- At the top left, the x-carriage is fastened with a **M3x10mm Hexagon Socket Head Cap Screw**.
- Plug the filament sensor cable onto the sensor.

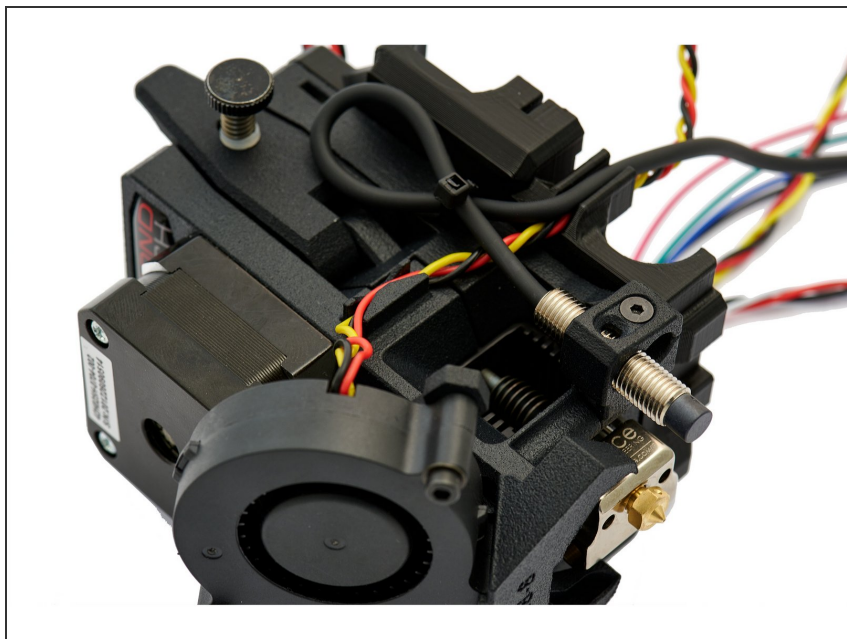
⚠ Make sure that the plug snaps into place.

## Step 27 — Installing the z-Sensor



- Insert the pinda into its mounts and fasten it with a **M3x16mm Flat Head-Head Socket Cap Screw** at the level of the nozzle.
- Plug the cable of the radial fan into the mount provided on the right side of the extruder and guide it to the x-carriage.
- Run the cable along the extruder (as shown in Fig. 3) and secure it with a zip tie.

## Step 28



- The assembly of the Extruder is completed now.
- Continue with instructions [16.1 Installation and Wiring of the Bondtech MK3S Mosquito Extruder](#).