

# Original Prusa MINI kit assembly

## 1. Y axis module assembly

### (1) Assembly of synchronous wheel of Y-axis motor

**Step 1-1-1:** As shown in Figure 1.1.1, prepare the materials and check whether the quantity of materials is correct, prepare for the next installation.

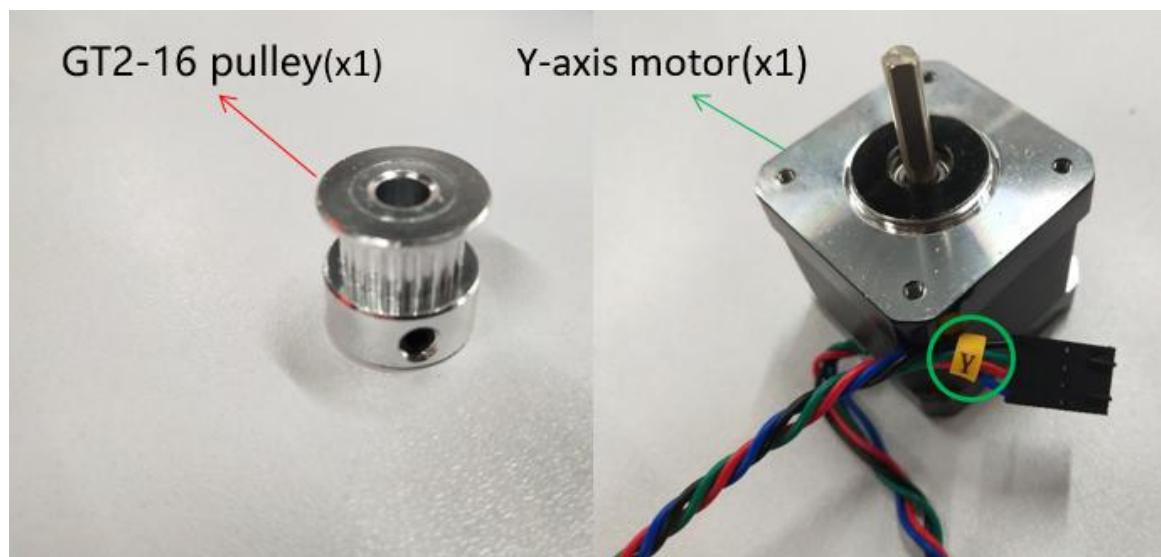


Figure 1.1.1

**Step 1-1-2:** Install the GT2 16 pulley on the Y-axis motor shaft, the end of the pulley with machine screws is installed upwards, and the distance between the motor end face and the pulley end face is 1.9mm, as shown in Figure 1.1.2 As shown.

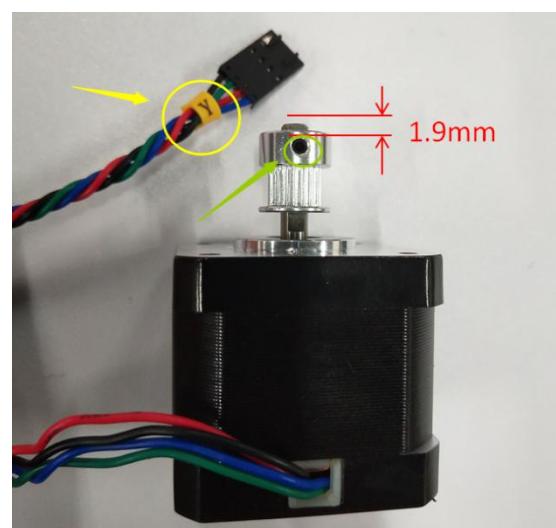


Figure 1.1.2

**Step 1-1-3:** After completing the assembly process, check whether the screws are tightened and whether the motor can rotate normally.

## (2) Assembly of Y-axis drive motor

**Step 1-2-1:** As shown in Figure 1.2.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

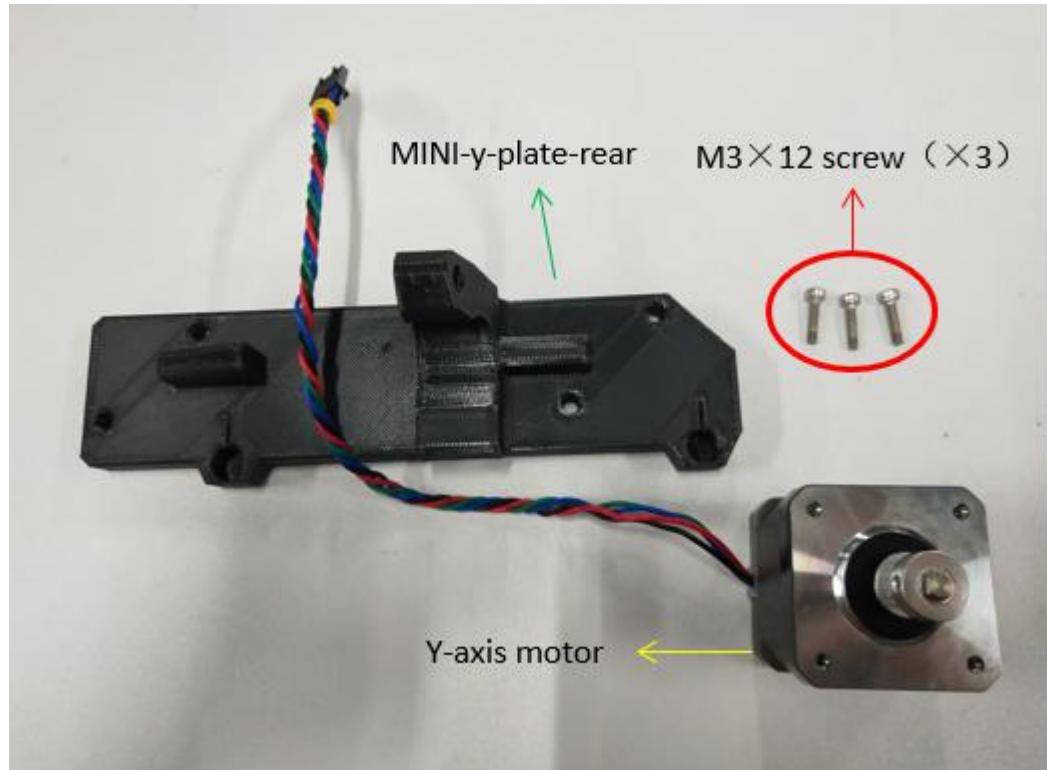


Figure 1.2.1

**Step 1-2-2:** Install the Y-axis motor into the MINI-y-plate-rear with 3pcs M3×12 hexagon socket head cap screws as shown in Figure 1.2.2.

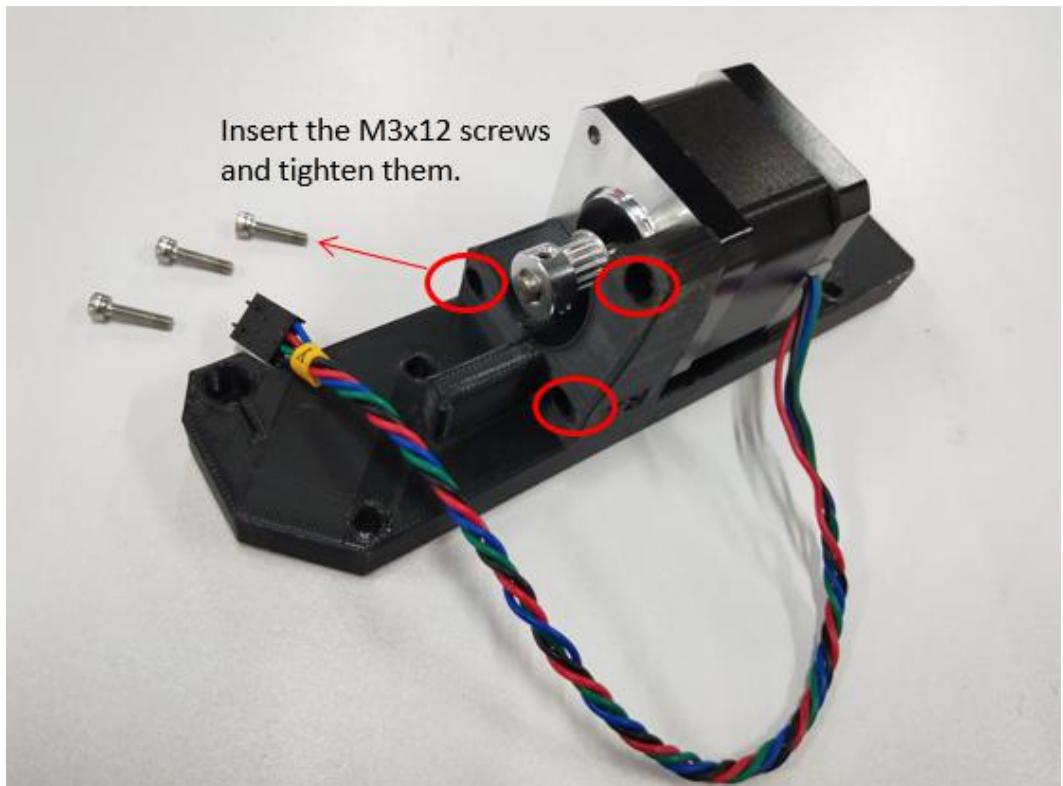


Figure 1.2.2

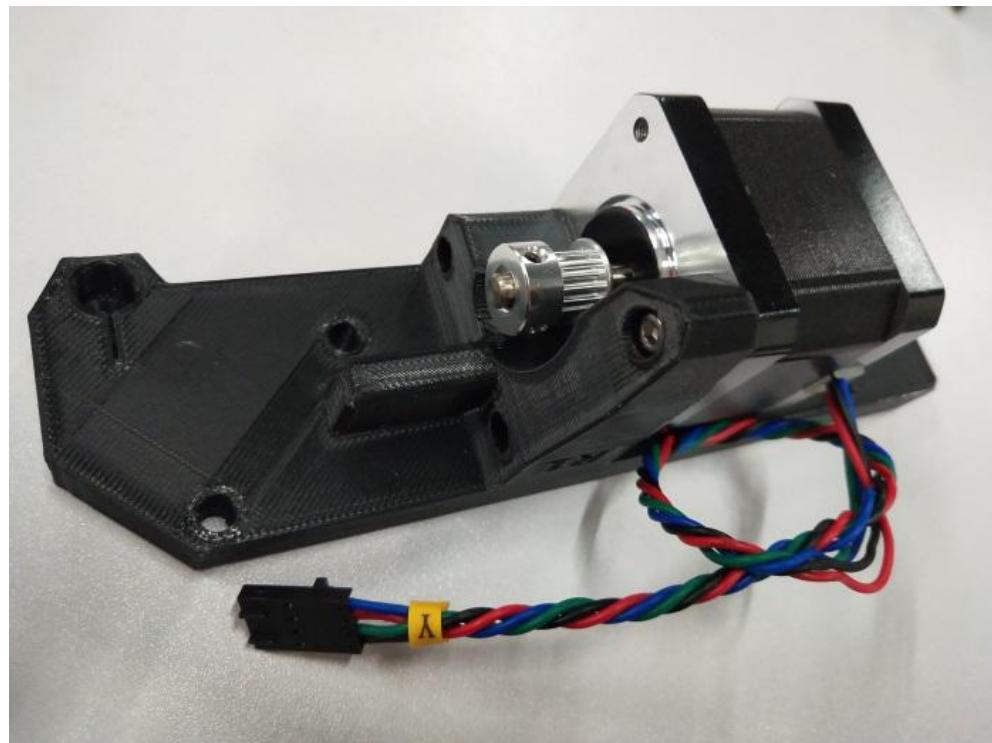


Figure 1.2.3

**Step 1-2-3:** After assembly, check whether the screws are tightened, whether the motor can rotate normally, and whether the installation direction is correct.

### (3) MINI-y-plate-front Screw installation

**Step 1-3-1:** As shown in Figure 1.3.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

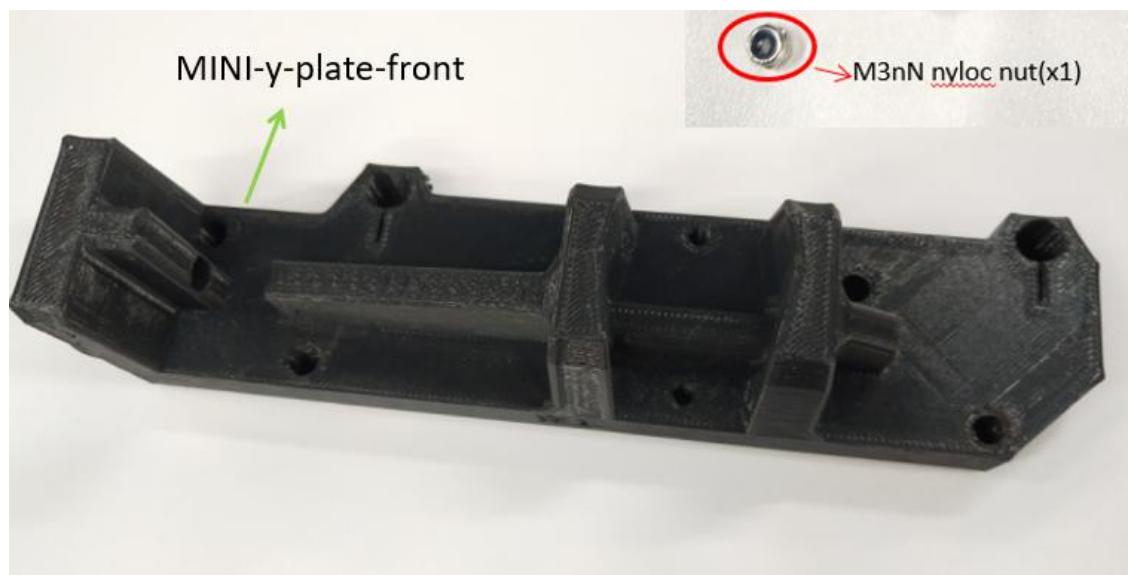


Figure 1.3.1

**Step 1-3-2:** Install an M3 lock nut into the MINI-y-plate-front bolt mounting hole, as shown in Figure 1.3.2



Figure 1.3.2



Figure 1.3.3

**Step 1-3-3:** After completing the assembly process, check whether the nut is firmly installed.

## (4) MINI-y-plate-front assemble with base profile frame

**Step 1-4-1:** As shown in Figure 1.4.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

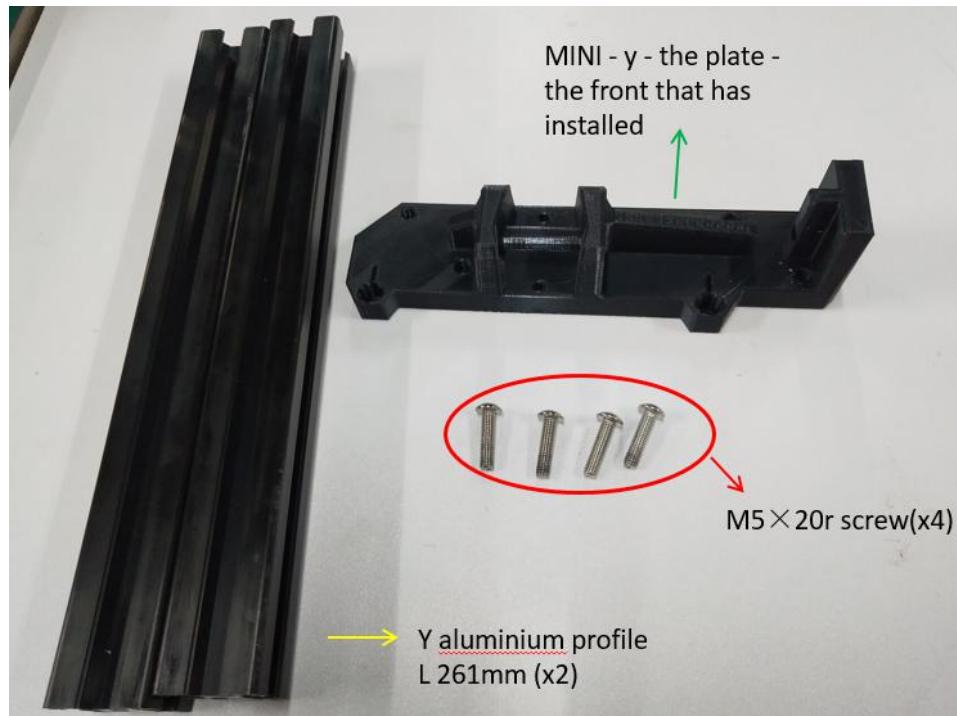


Figure 1.4.1

**Step 1-4-2:** As shown in Figure 1.4.2, pre-tighten the MINI-y-plate-front and two Y-axis profiles with 4pcs M5×20 hex socket head cap screws.



Figure 1.4.2

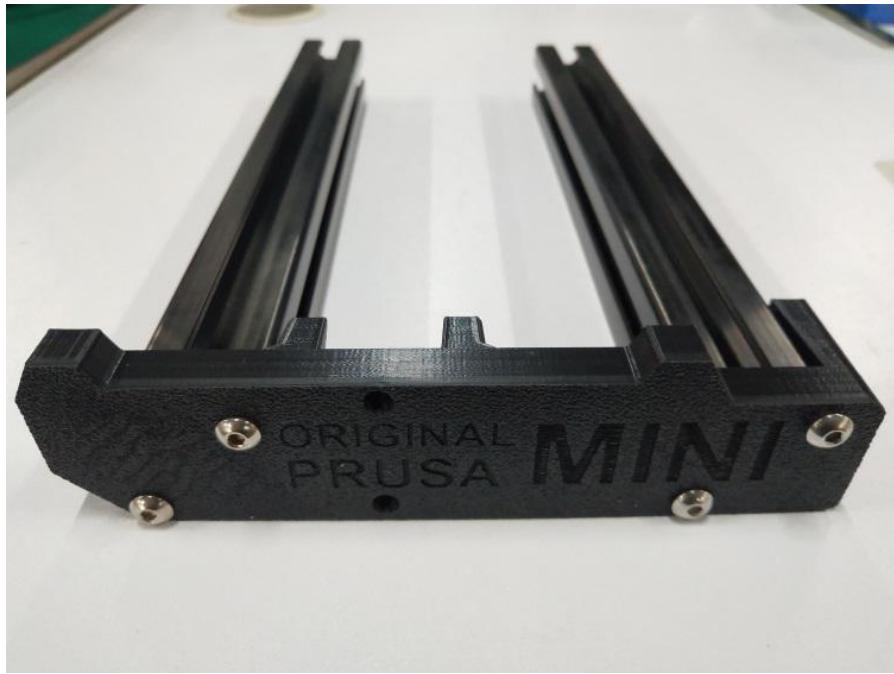


Figure 1.4.3

**Step 1-4-3:** After completing the assembly process, check whether the installation direction of the profile frame and print parts are correct.

## (5) The assembly of the isolation column of the hot bed support plate.

**Step 1-5-1:** As shown in Figure 1.5.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

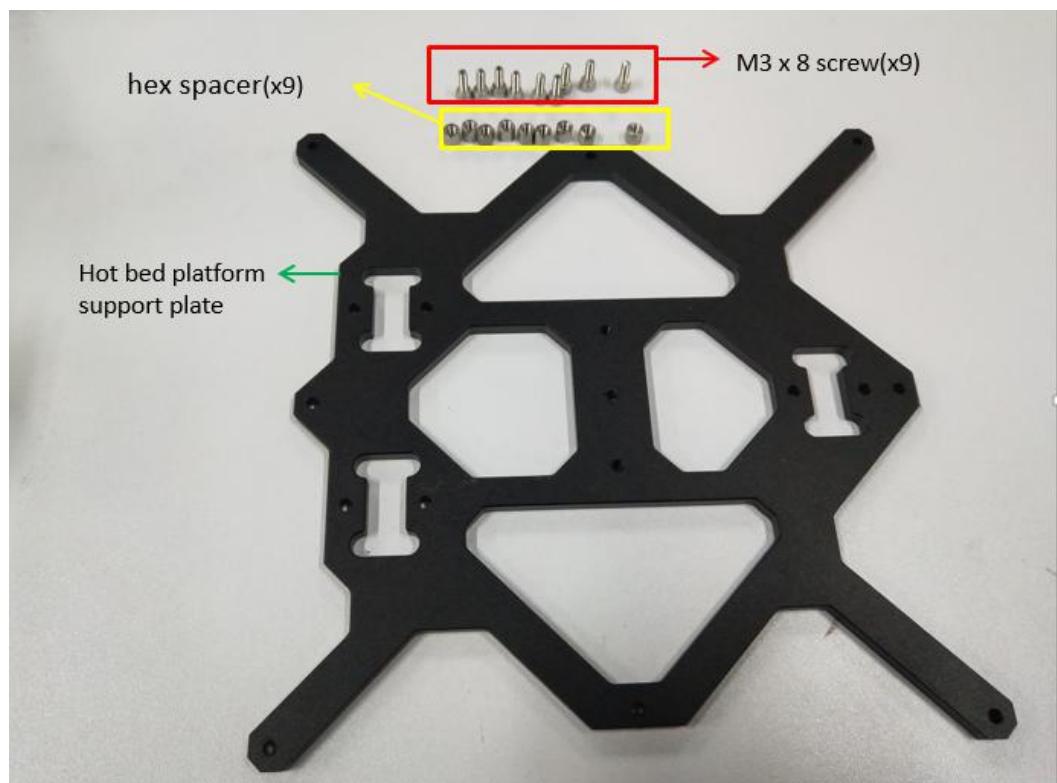


Figure 1.5.1

**Step 1-5-2:** Install 9pcs hex spacer and 9pcs M3×8 screws on one side of the platform to lock them, as shown in Figure 1.5.2 and Figure 1.5.3.

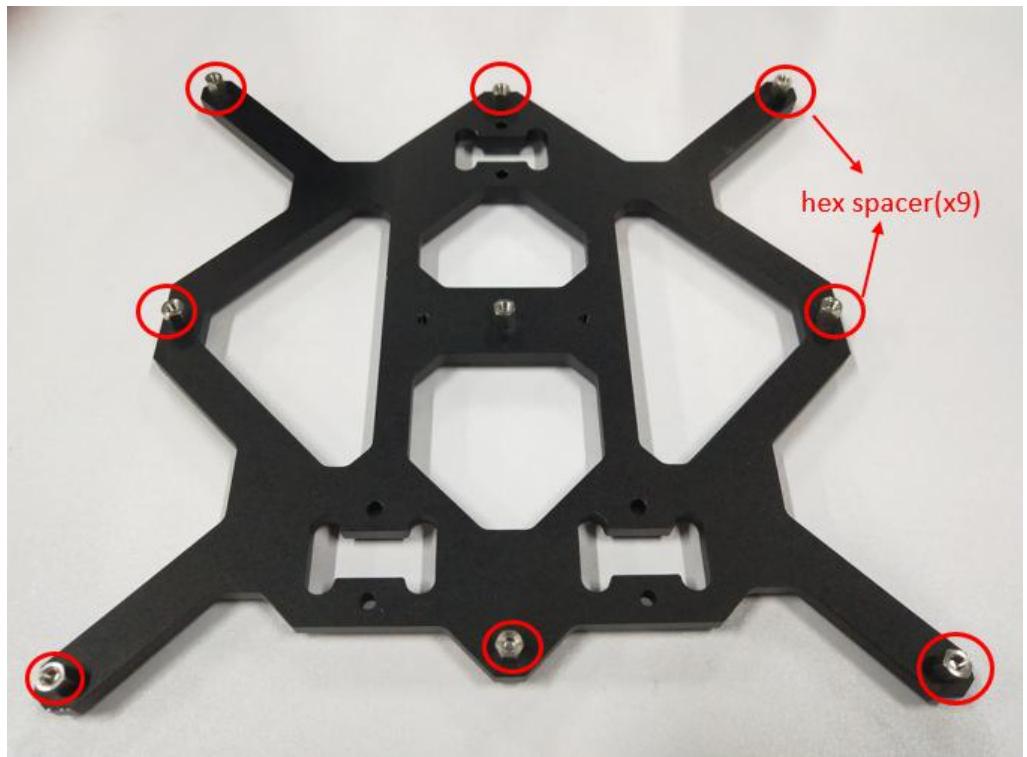


Figure 1.5.2



Figure 1.5.3

**Step 1-5-3:** Check whether the screws are tight after assembling the process.

## (6) Slider installation of hot bed platform

**Step 1-6-1:** As shown in Figure 1.6.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

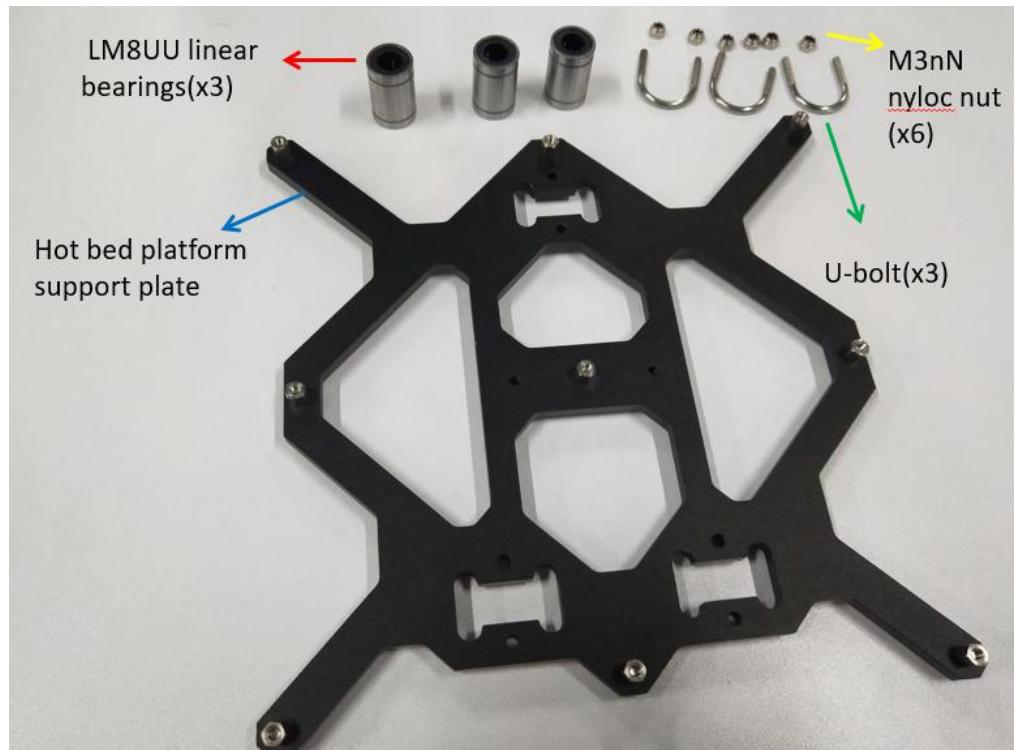


Figure 1.6.1

**Step 1-6-2:** Clamp 3pcs U-bolts to 3 pcs linear bearings respectively. The linear bearings are installed in the three linear bearing installation slots of the hot bed platform support plate. The end faces of the linear bearings are aligned with the platform clamps One side of the slot, as shown in Figure 1.6.2.

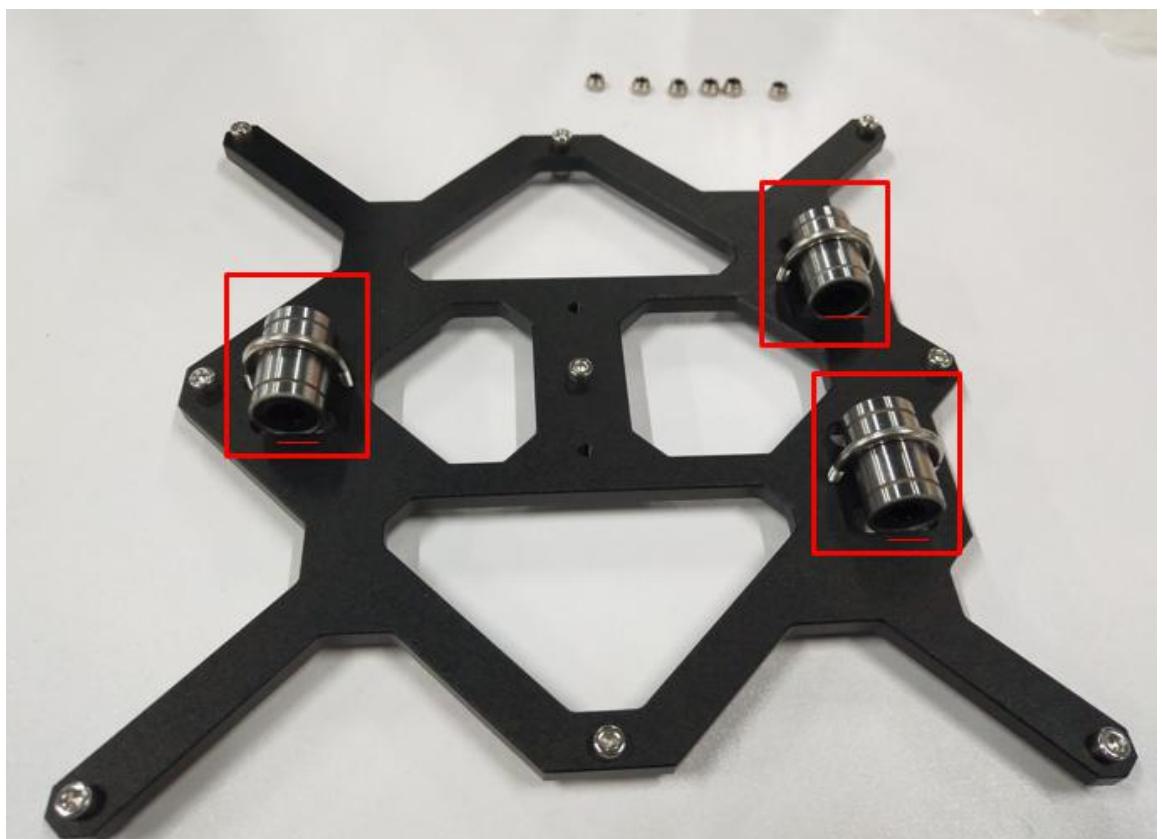


Figure 1.6.2

**Step 1-6-3:** The other end of the U-bolts is locked with 6pcs M3 lock nuts respectively, and all 6pcs M3 nuts should be pre-tightened. After all the nuts are install, then should be locked tight. After locking, ensure that the linear bearing is not loose, as shown in Figure 1.6.3.



Figure 1.6.3

## (7) Assembly of Y-axis belt

**Step 1-7-1:** As shown in Figure 1.7.1, prepare the materials and check whether the quantity of materials is correct, prepare for the next installation.

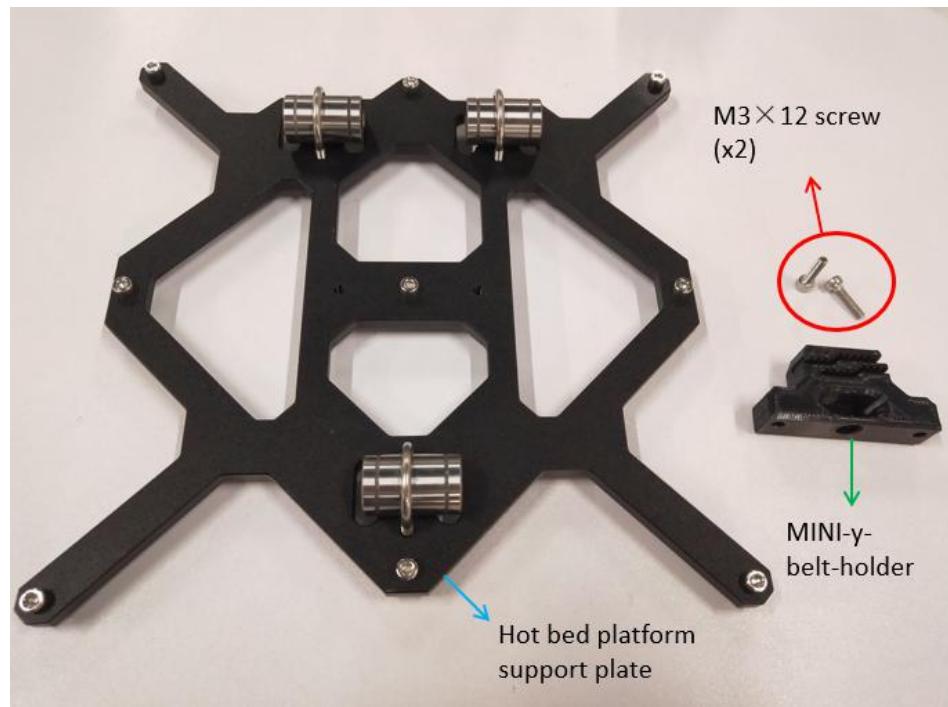


Figure 1.7.1

**Step 1-7-2:** Align the two through holes on the MINI-y-belt-holder with the two mounting holes of the hot-bed platform support plate, pay attention to the direction of the MINI-y-belt-holder slot, face to the single linear bearing, and then use two M3 × 12 cylindrical head hexagon bolts to lock it on the hot bed platform support plate. As shown in Figure 1.7.2.

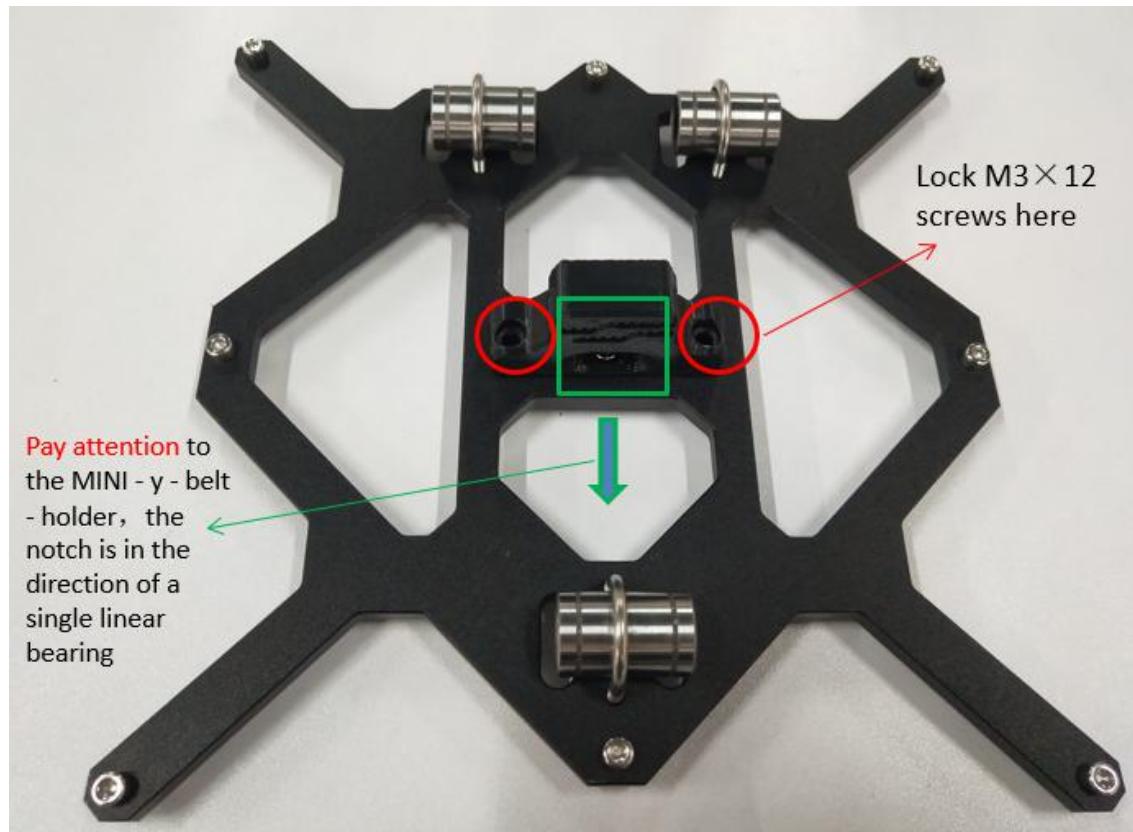


Figure 1.7.2

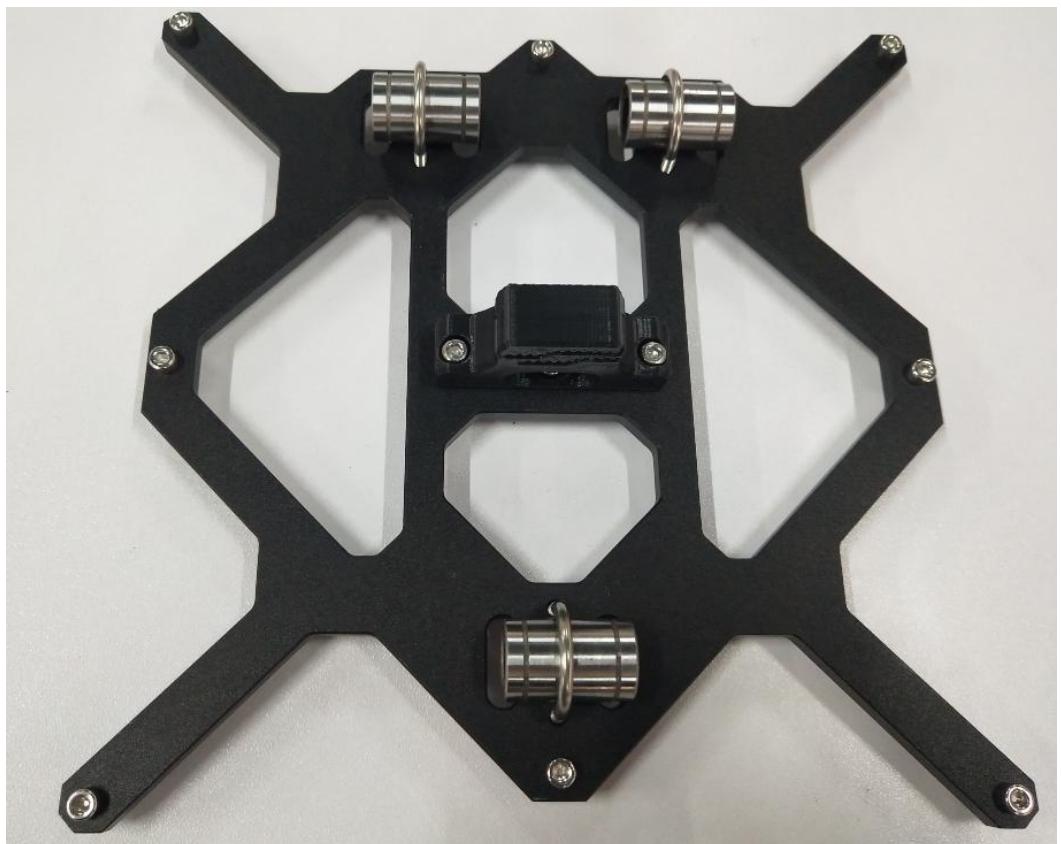


Figure 1.7.3

**Step 1-7-3:** After completing the assembly process, check whether the screws are tightened and the installation direction of the MINI-y-belt-holder is correct.

## (8) Installation of Y-axis smooth rod and profile nut

**Step 1-8-1:** As shown in Figure 1.8.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

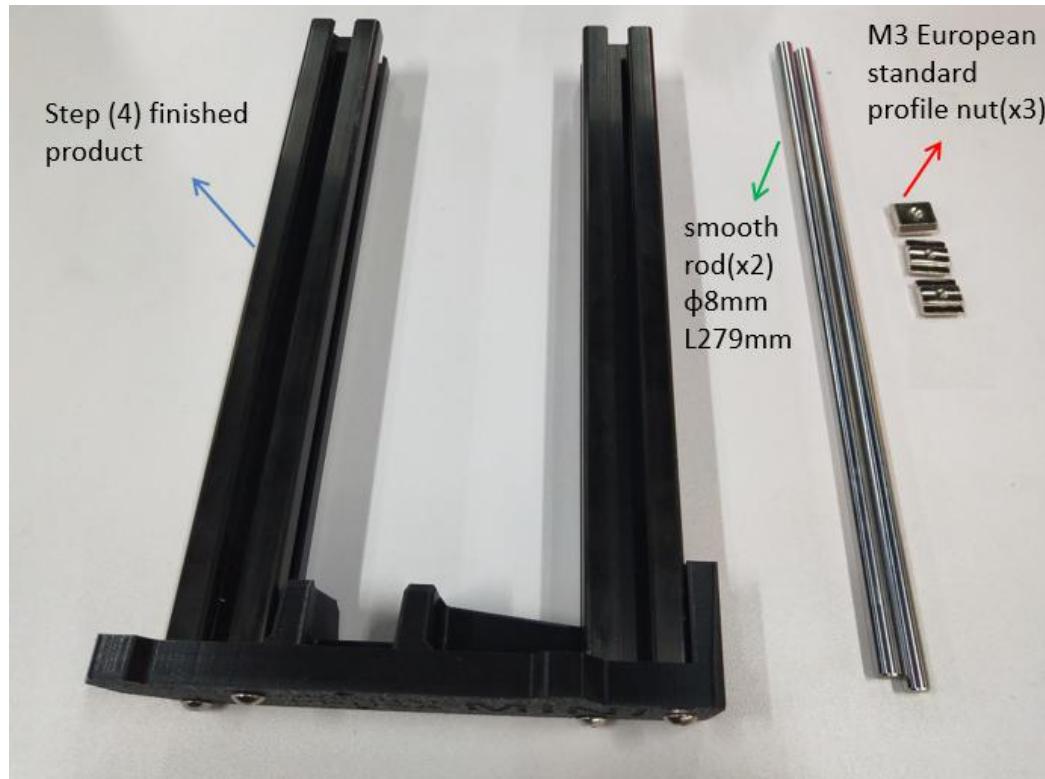


Figure 1.8.1

**Step 1-8-2:** Knock the two Y-axis smooth rods into the two smooth rod mounting holes on the MINI-y-plate-rear and knock them to the bottom, as shown in Figure 1.8.3.

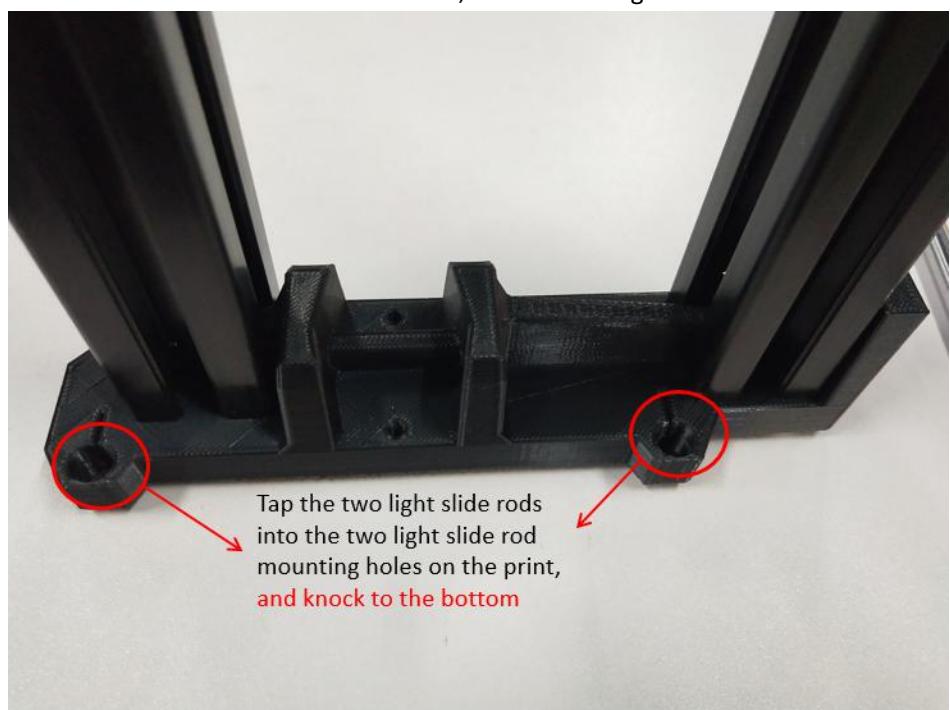


Figure 1.8.2



Figure 1.8.3

**Steps 1-8-3:** Then install the three profile nuts into the profile grooves as shown in Figure 1.8.4.

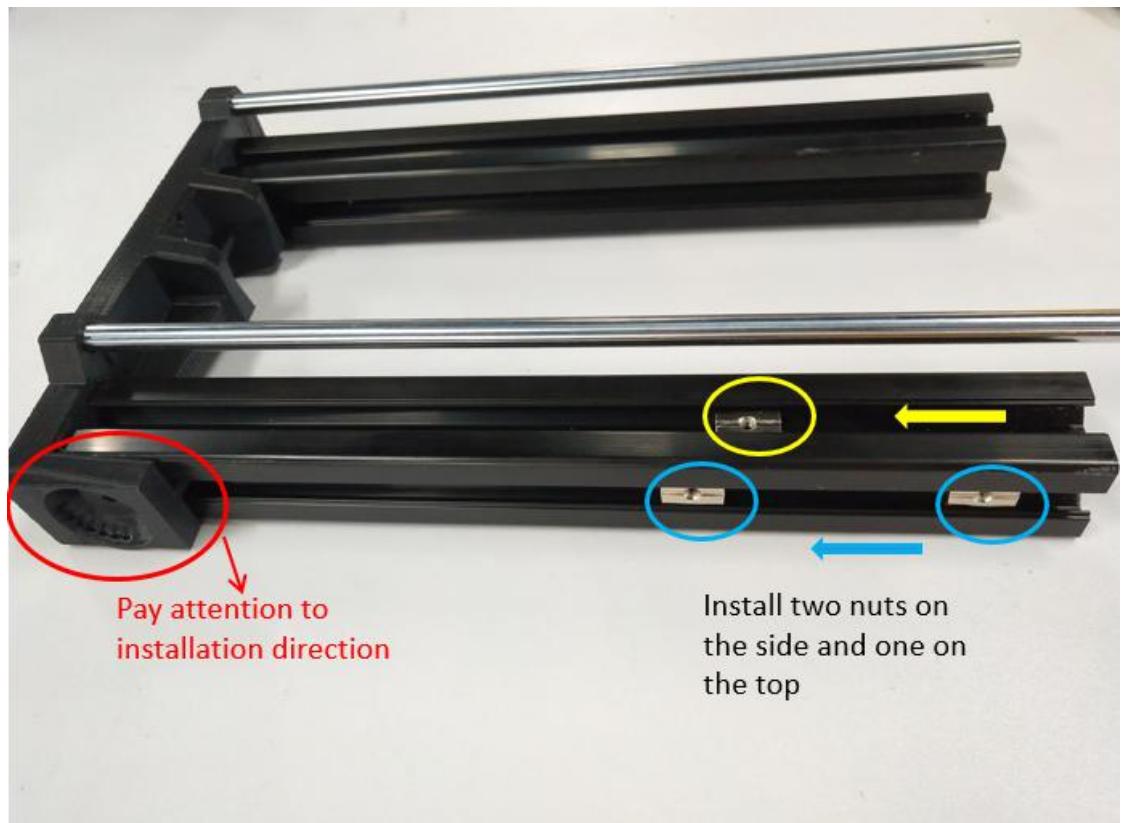


Figure 1.8.4

**Steps 1-8-4:** After completing the assembly process, check whether the installation direction is correct and whether the smooth rod is firmly installed.

## (9) Assembly of base profile frame & support plate

**Step 1-9-1:** As shown in Figure 1.9.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

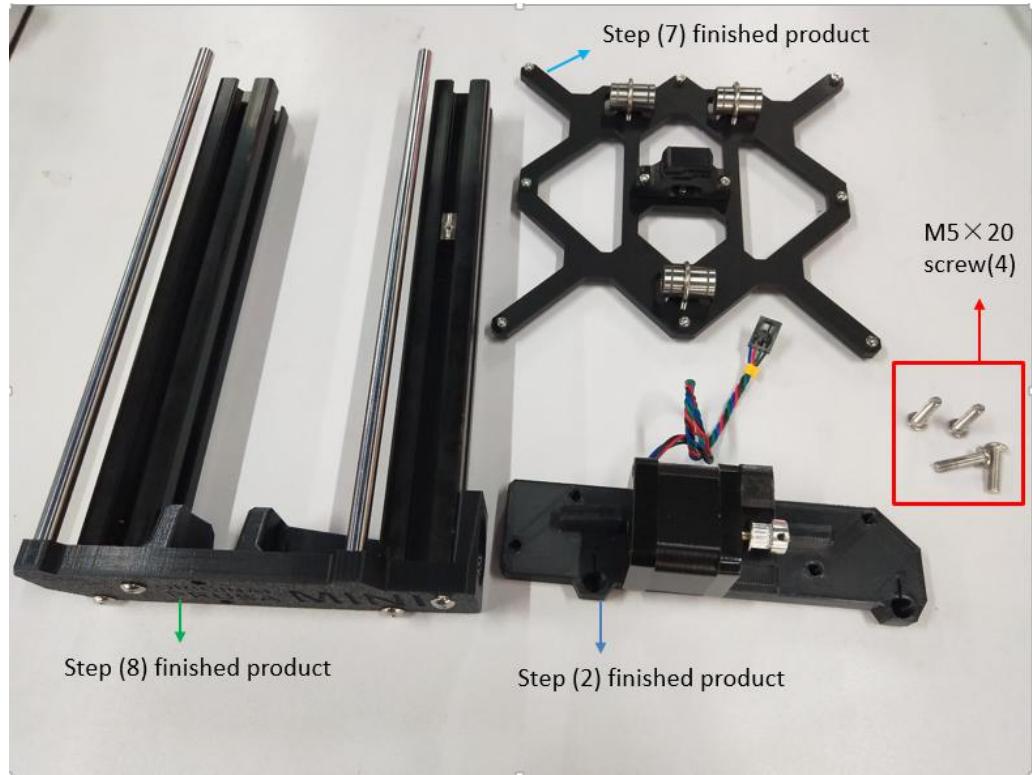


Figure 1.9.1

**Step 1-9-2:** As shown in Figure 1.9.2, pay attention to put the finished product of step (7) gently into the smooth rod on the profile as the direction shown in Figure, Note that the linear bearing should be aligned with the smooth rod , otherwise it will easily cause the linear bearing ball to fall down (If you accidentally push the balls in the linear bearing out of the bearing, one or two can continue to be used. If there are more than two, please consider replacing the new linear bearing).

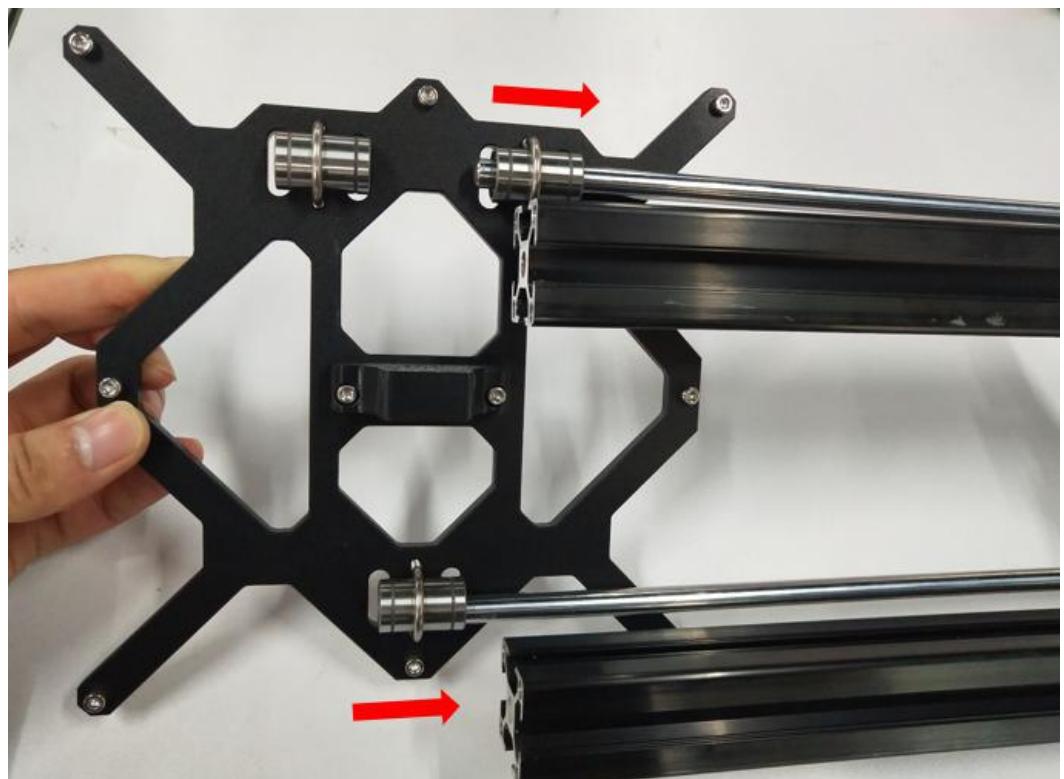


Figure 1.9.2

**Step 1-9-3:** As shown in Figure 1.9.3, after installing the support plate into the smooth rod, check whether the direction is reversed. The installation direction of the side with a single linear bearing is required to face the side with the control panel installation hole ; Check if the support plate slides abnormally.

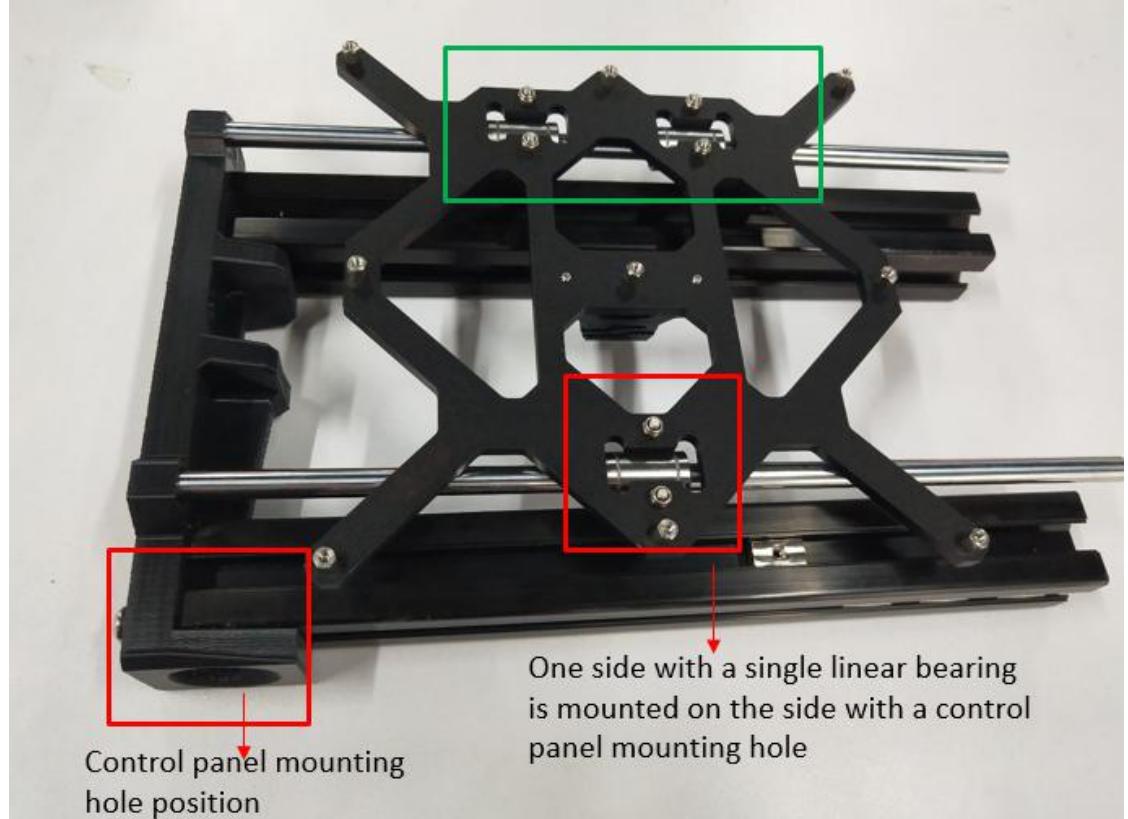


Figure 1.9.3

**Steps 1-9-4:** As shown in Figure 1.9.4, after installing the support plate, install the MINI-y-plate-rear against the slide rod to the profile. Note that the smooth rod should be inserted into the bottom of the print, the print and the profiles are close together.

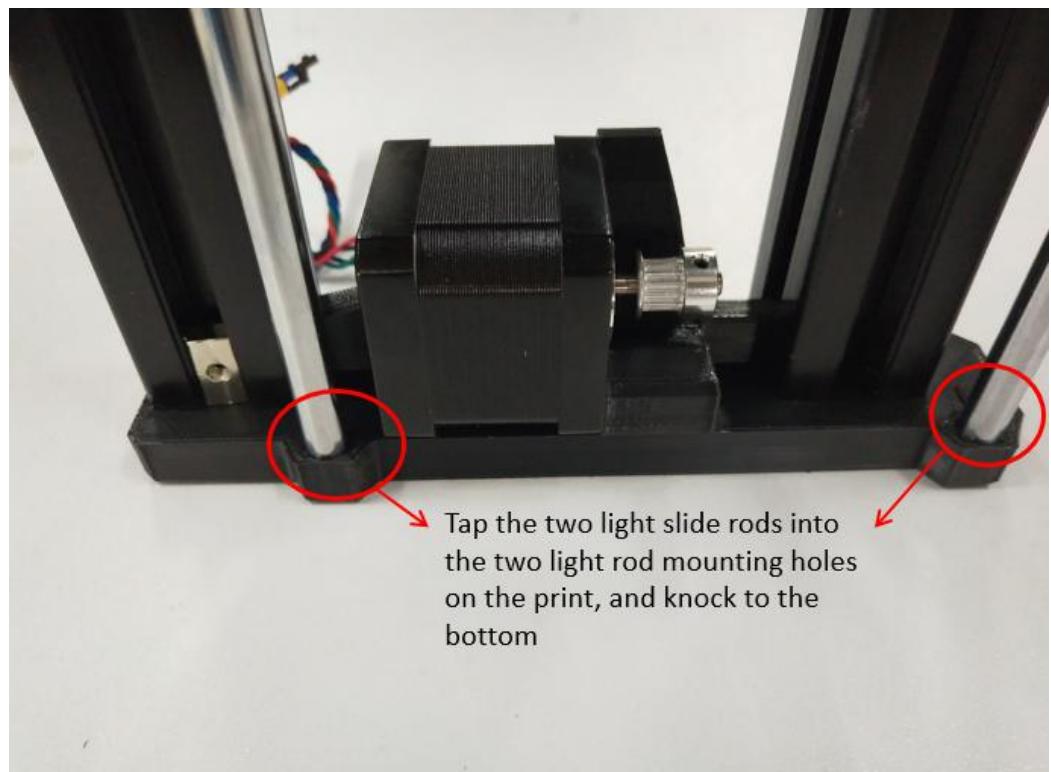


Figure 1.9.4

**Steps 1-9-5:** As shown in Figure 1.9.5, use 4pcs M5 × 20 hex socket head cap screws to lock the MINI-y-plate-rear and Y-axis aluminum profiles, **and at the same time (the previous step 4 ),lock all pre-tightened M5 × 20 bolts tighten.**

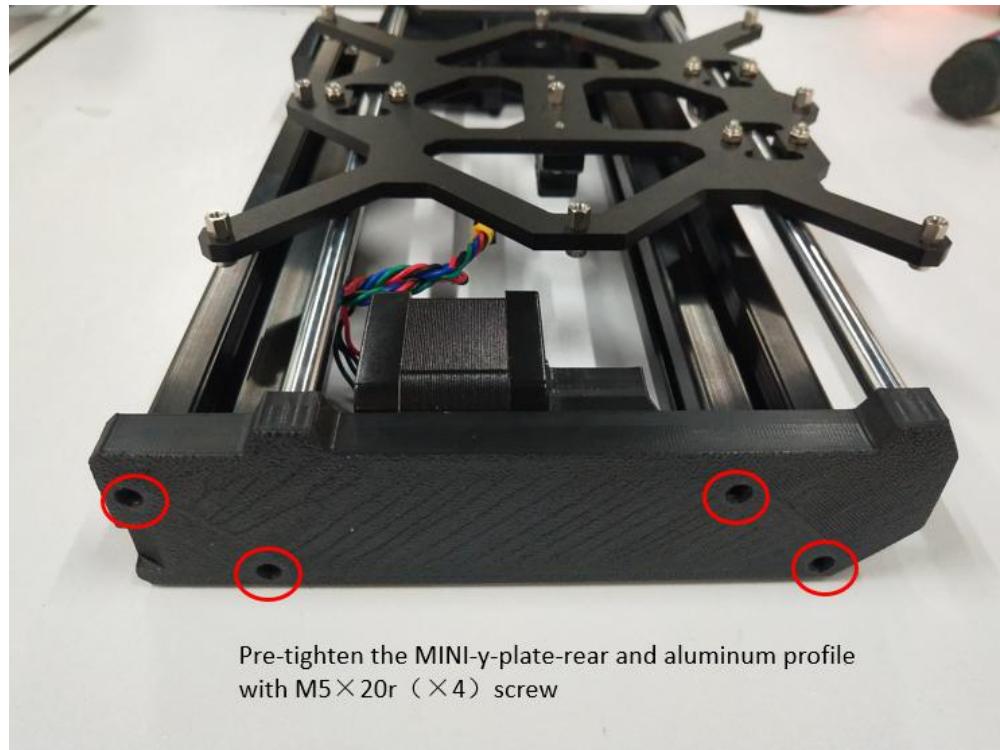


Figure 1.9.5



Figure 1.9.6

**Steps 1-9-6:** After completing the assembly process, check whether the installation direction is correct and the screws are tightened.

## (10) Installation of MINI-y-idler

**Step 1-10-1:** As shown in Figure 1.10.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

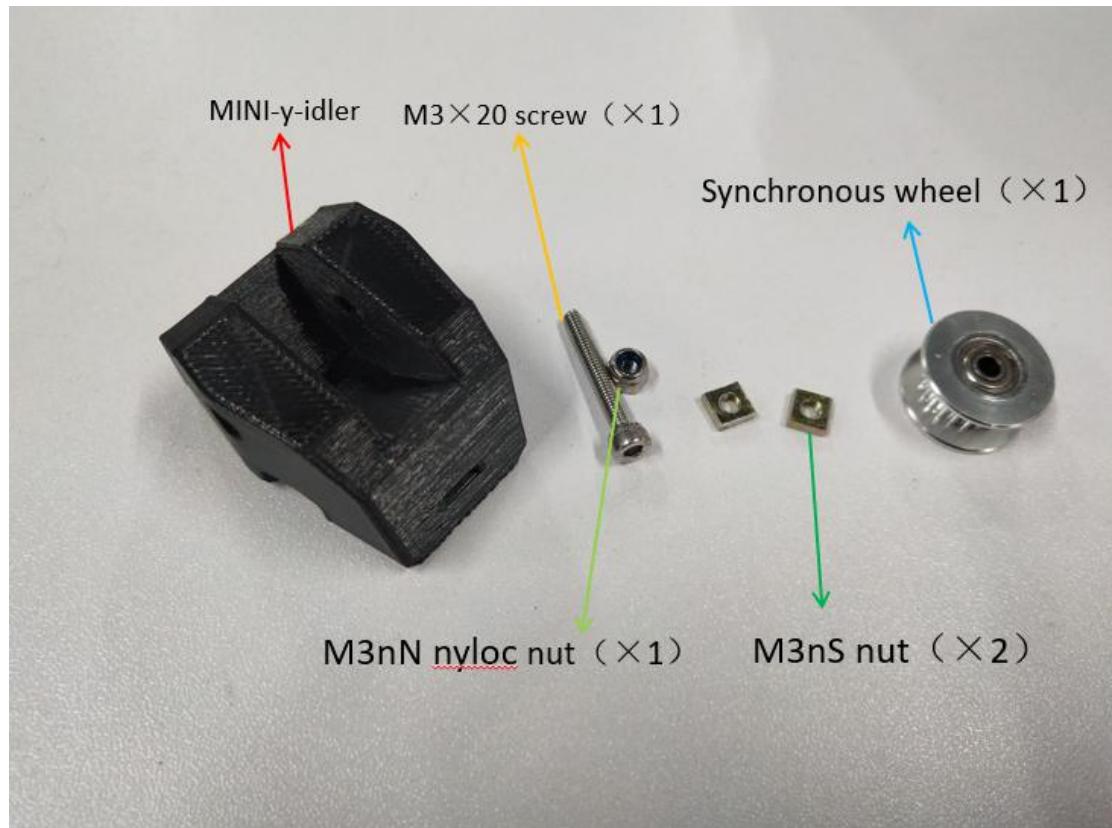


Figure 1.10.1

**Step 1-10-2:** As shown in Figure 1.10.2, insert two M3 square nuts into the four square grooves on each side of the MINI-y-idler until the hole of the square nut and the hole of the print are concentric as shown in Figure 1.10 .4 shown.

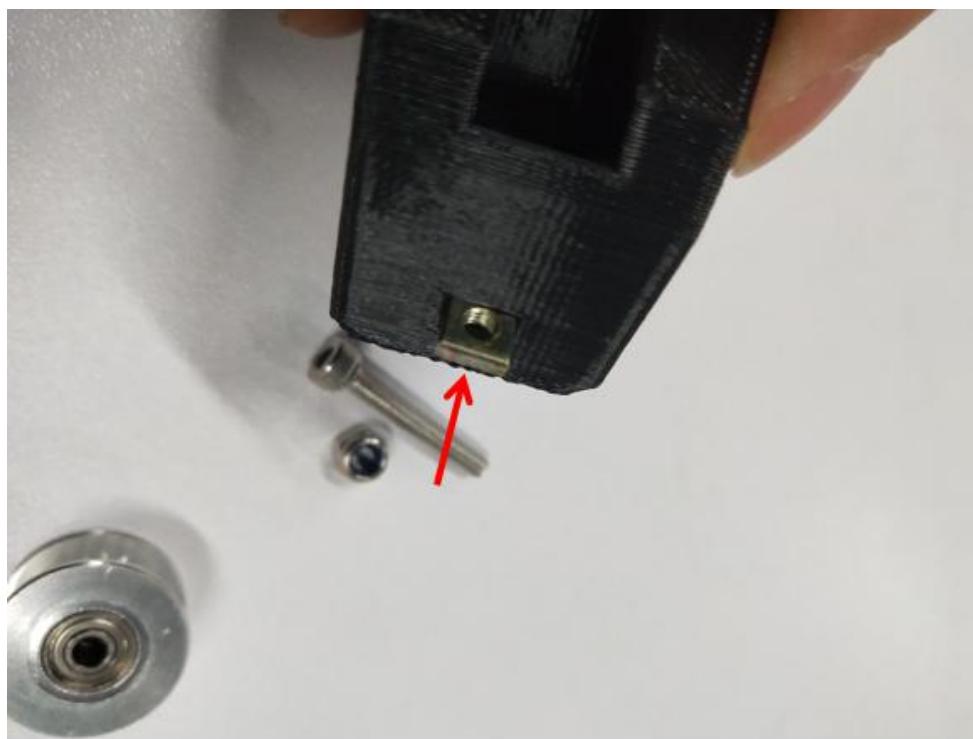


Figure 1.10.2



Figure 1.10.3

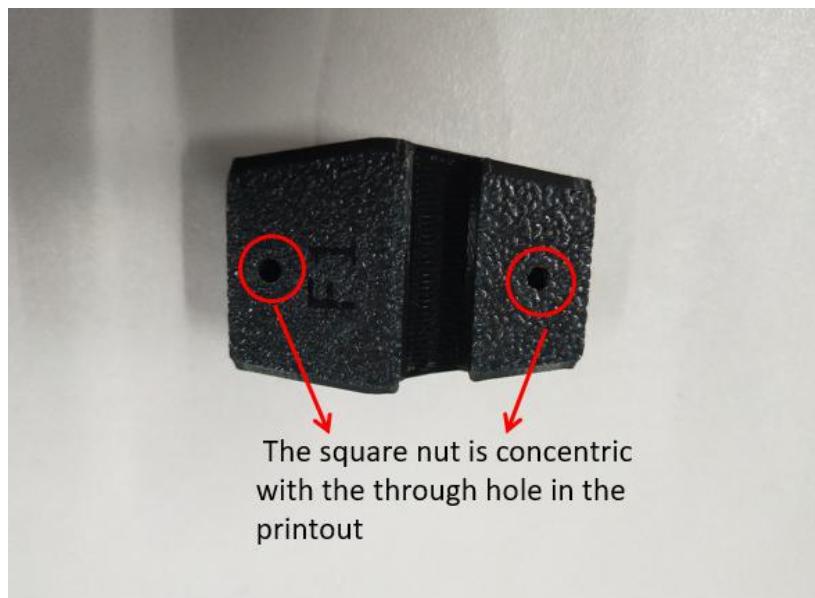


Figure 1.10.4

**Step 1-10-3:** As shown in Figure 1.10.5, insert the M3 lock nut into the hexagonal slot on the MINI-y-idler print.

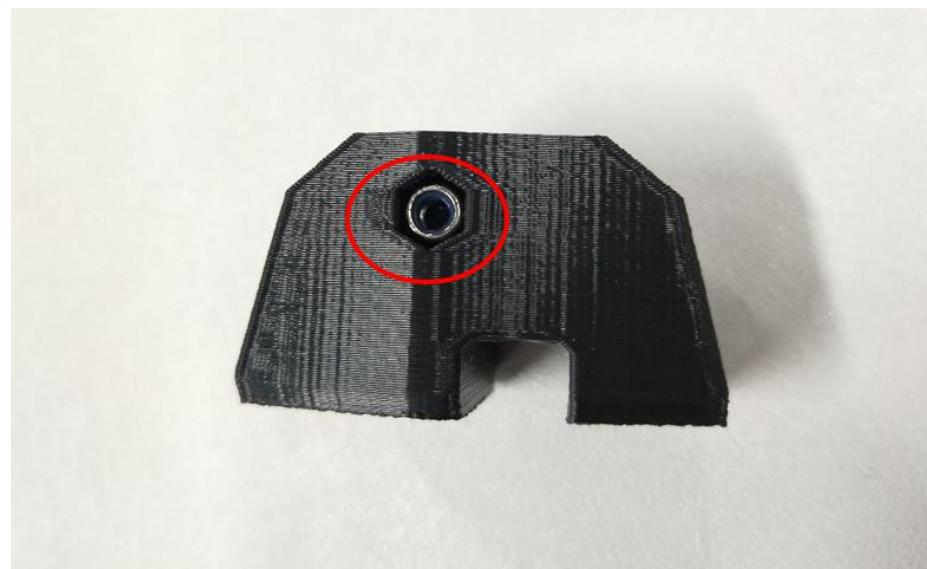


Figure 1.10.5

**Step 1-10-4:** As shown in Figure 1.10.6, install the synchronization wheel on the MINI-y-idler and lock it with M3 × 20 cylinder head screws.

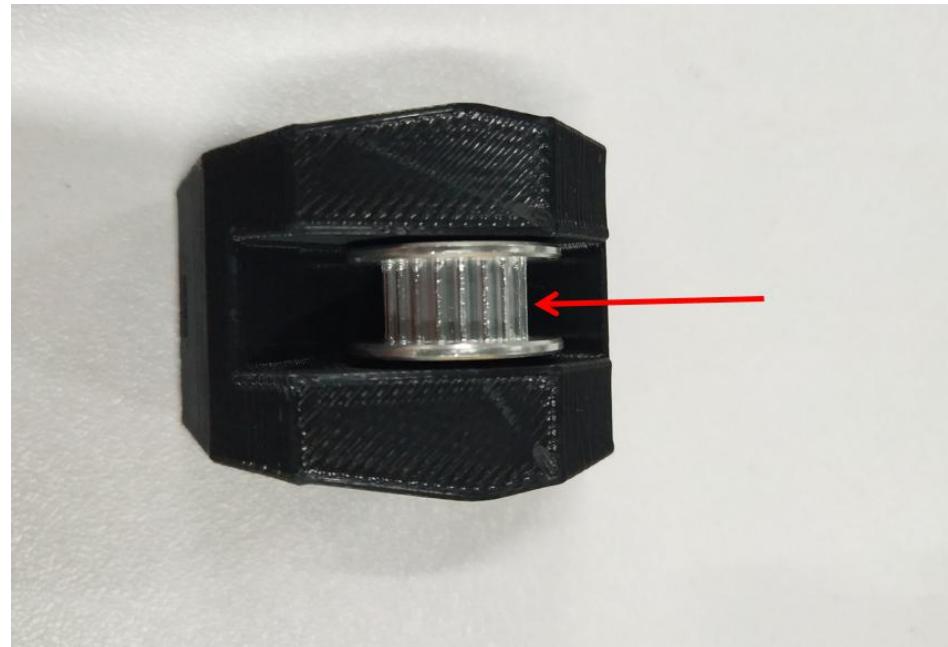


Figure 1.10.6



Figure 1.10.7

**Step 1-10-5:** After completing the assembly process, check whether the installation direction is correct and whether the screws are tightened.

## (11) Installation of Y-axis belt

**Step 1-11-1:** As shown in Figure 1.10.1, prepare the materials and check whether the quantity of materials is correct, prepare for the next installation.

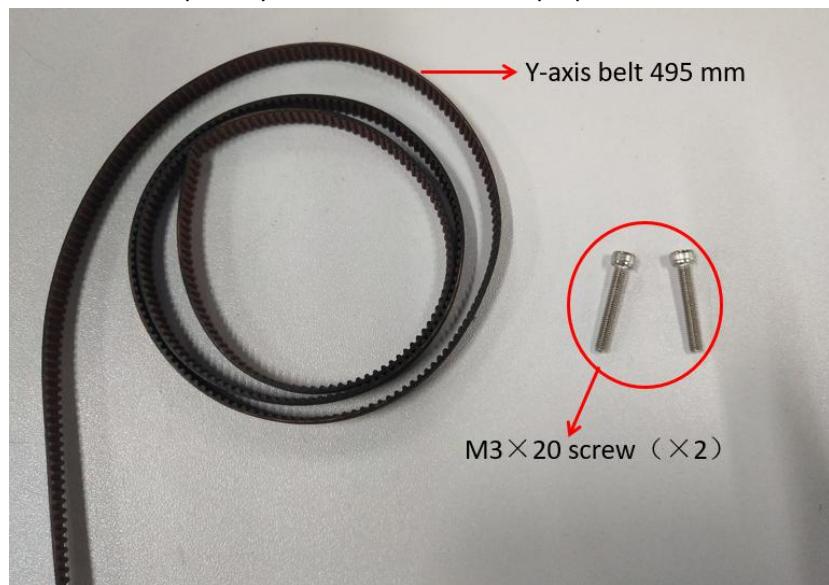


Figure 1.11.1

**Step 1-11-2:** As shown in Figure 1.11.2, install one end of the belt into the lower notch on the MINI-y-belt-holder. The direction of the belt teeth is upward to match the teeth of the notch.

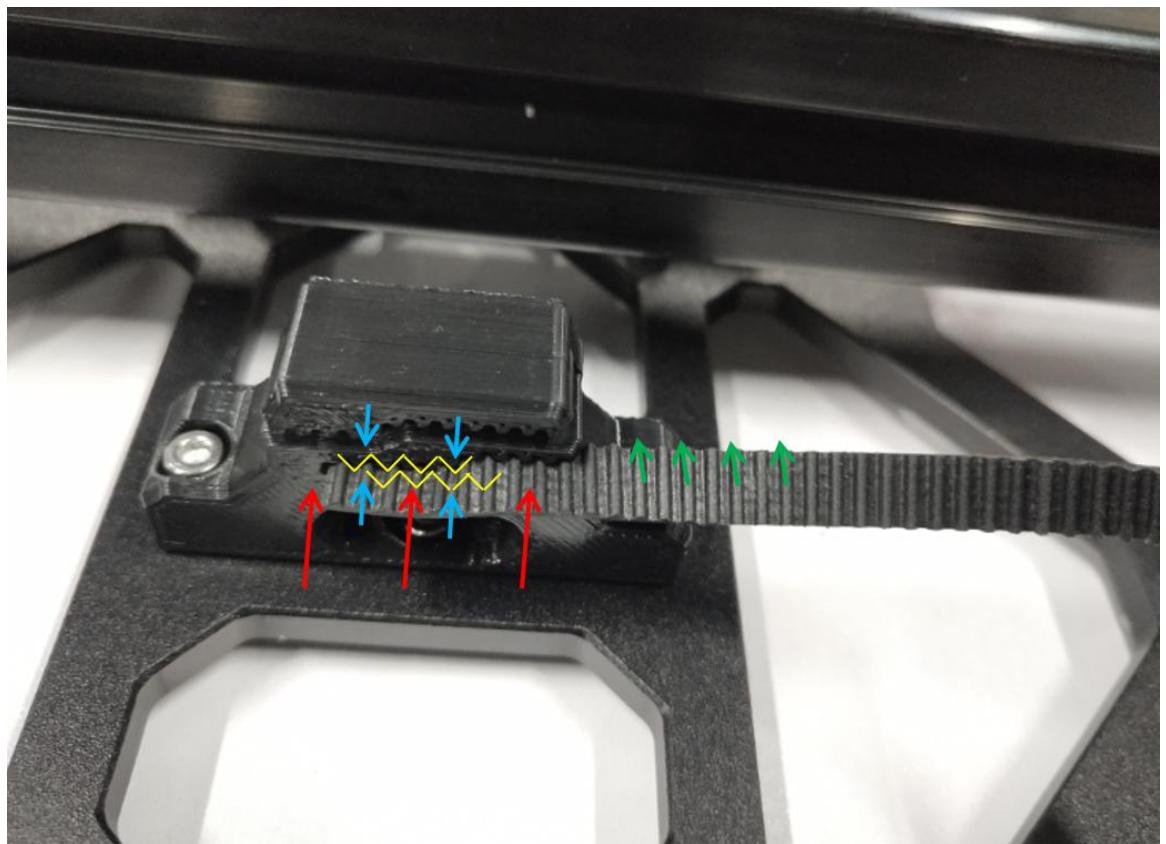


Figure 1.11.2



Figure 1.11.3

**Step 1-11-3:** As shown in Figure 1.11.4, pass the other end of the Y-axis belt through the synchronization wheel on the MINI-y-idler.



Figure 1.11.4

**Step 1-11-4:** As shown in Figure 1.11.5, install the other end of the Y-axis belt into another notch on the MINI-y-belt-holder with the teeth of the belt facing upward.

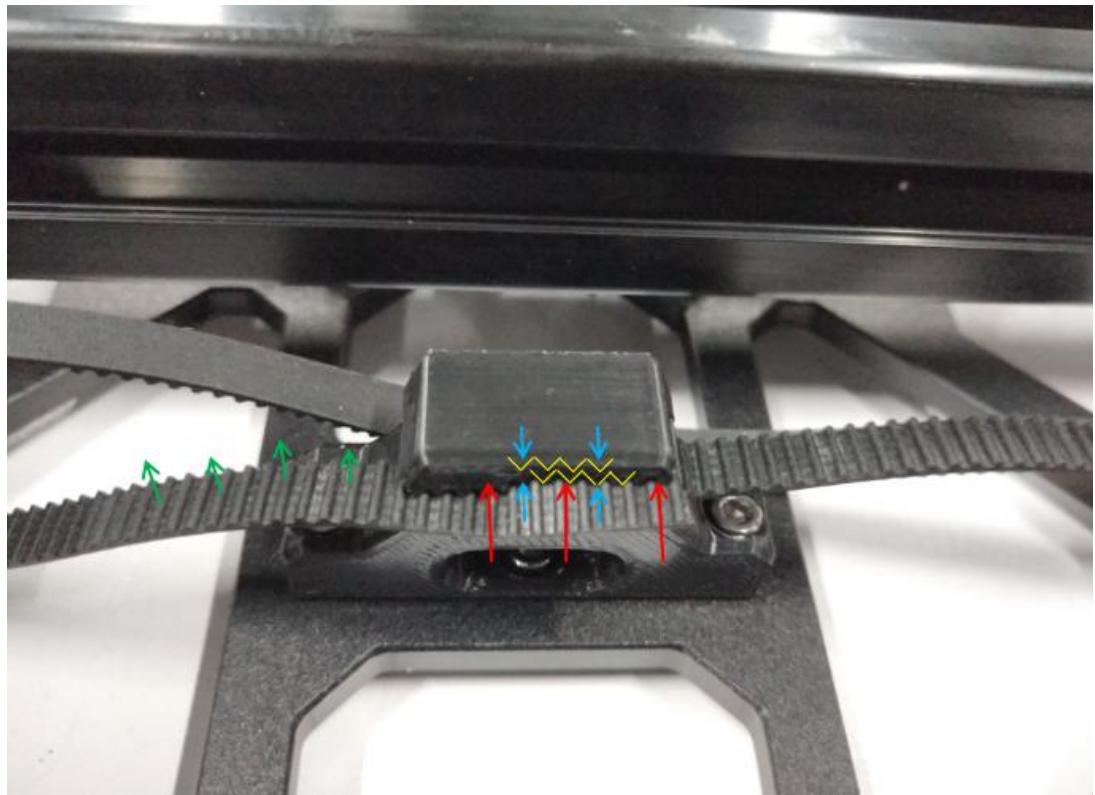


Figure 1.11.5

**Step 1-11-5:** As shown in Figure 1.11.6, put the Y-axis belt into the synchronous wheel on the Y-axis motor.

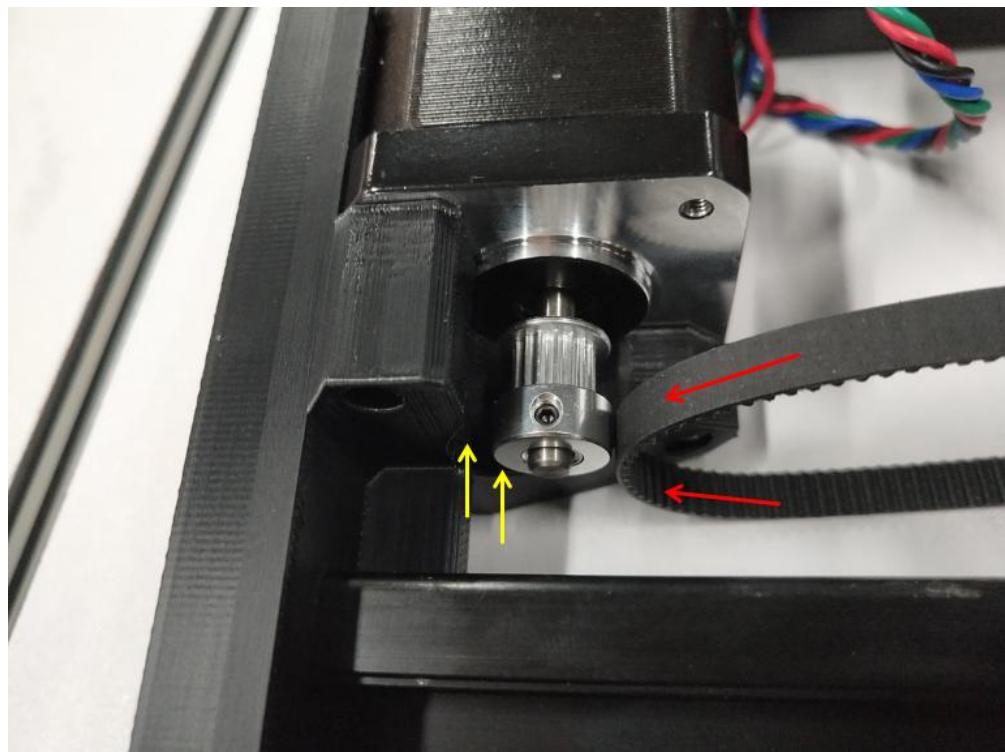


Figure 1.11.6

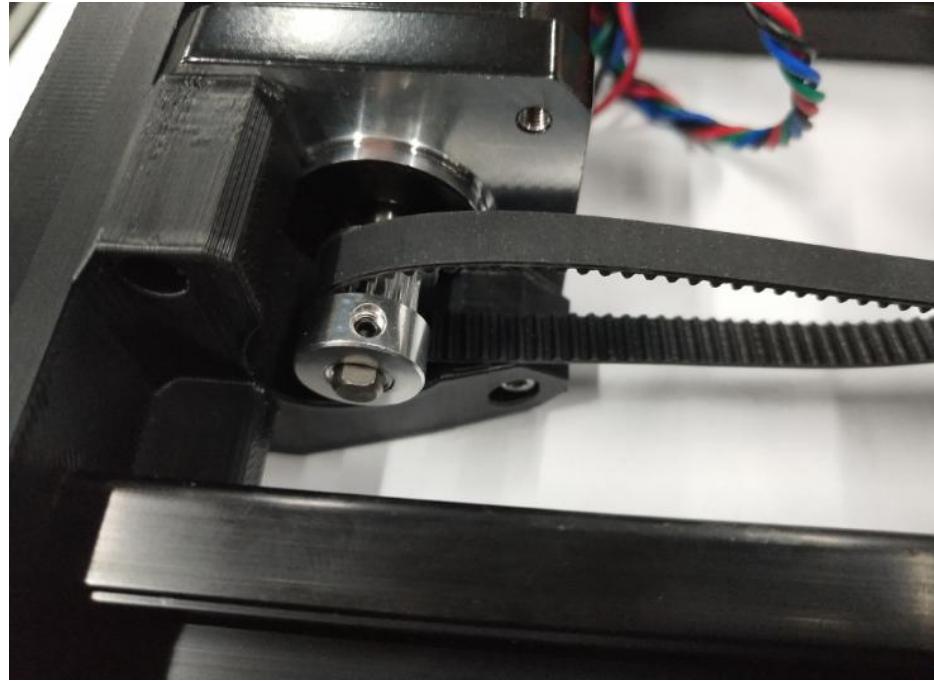


Figure 1.11.7

**Step 1-11-6:** As shown in Figure 1.11.8, tighten the MINI-y-idler equipped with the Y-axis belt into the slot on the MINI-y-plate-front, and use 2pcs M3×20 The screws lock it which used to adjust the tightness of the Y-axis belt, as shown in Figure 1.11.10.

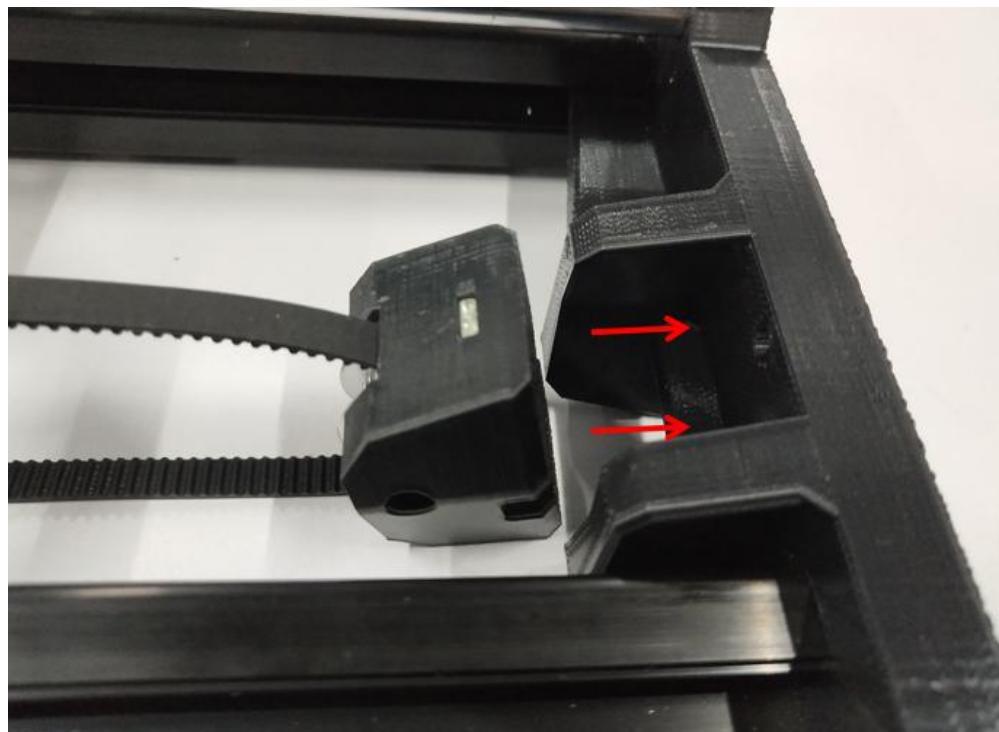


Figure 1.11.8

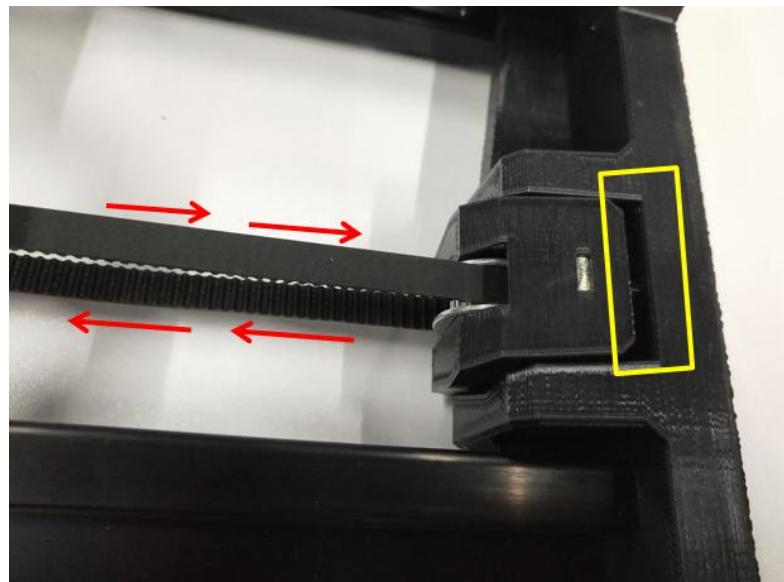


Figure 1.11.9

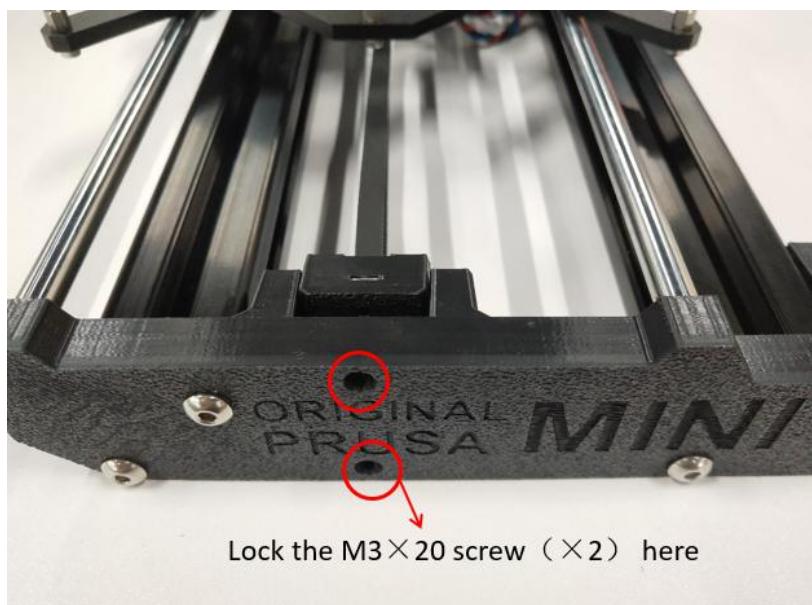


Figure 1.11.10

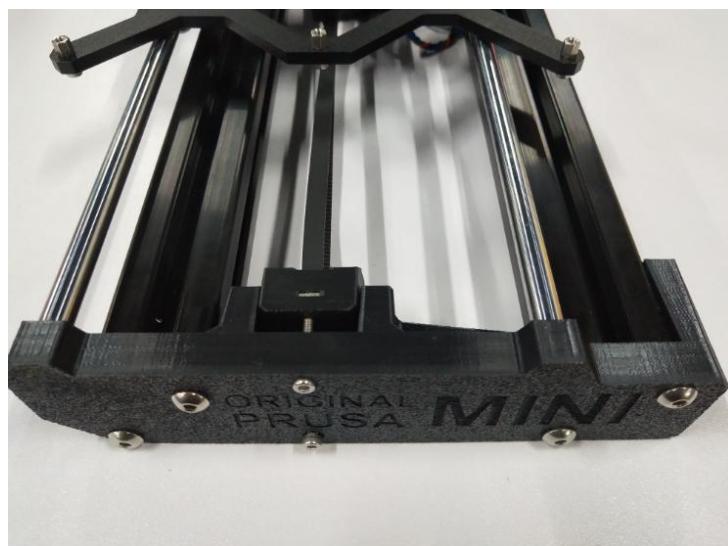


Figure 1.11.11

**Steps 1-11-7:** After completing the assembly process, check whether the installation direction is correct and whether the screws are tightened.

## (12) Hot bed assembly

**Step 1-12-1:** As shown in Figure 1.12.1, prepare the materials and check whether the quantity of materials is correct, prepare for the next installation.

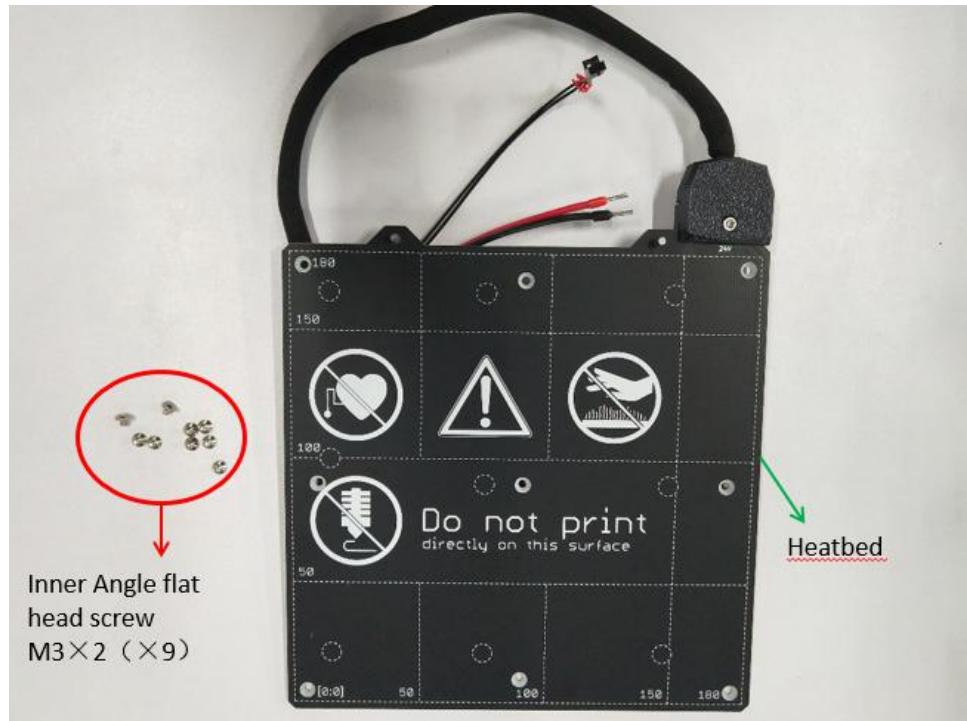


Figure 1.12.1

**Step 1-12-2:** As shown in Figure 1.12.2, install the hot bed onto the hot bed platform support plate (note the installation direction of the hot bed), and tighten it with 9pcs M3×2 inner flat-angle screws.

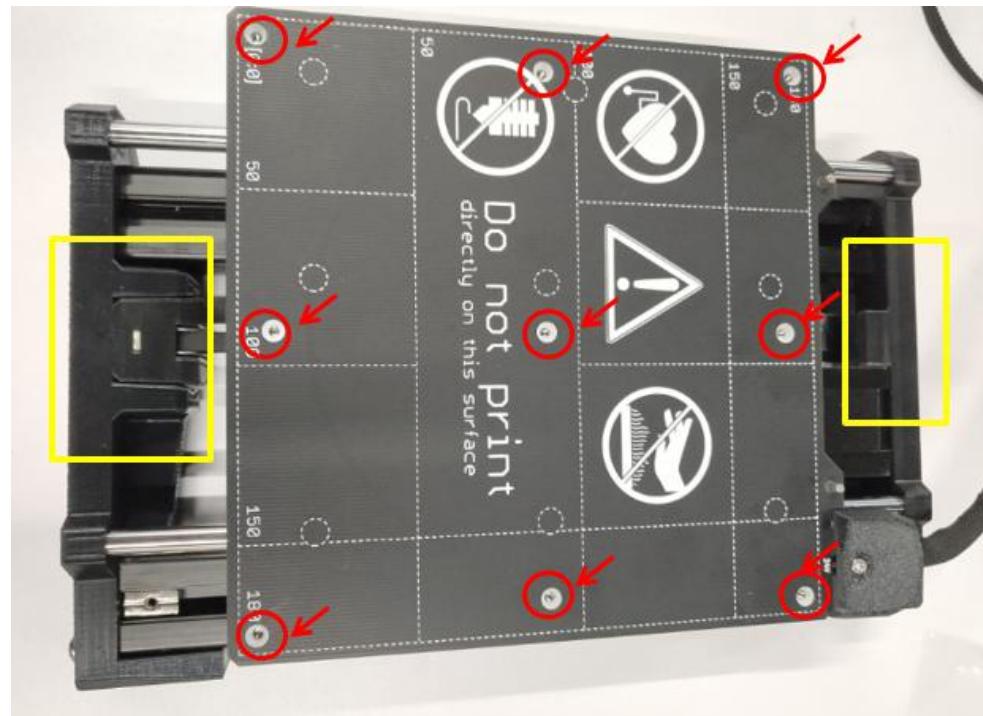


Figure 1.12.2

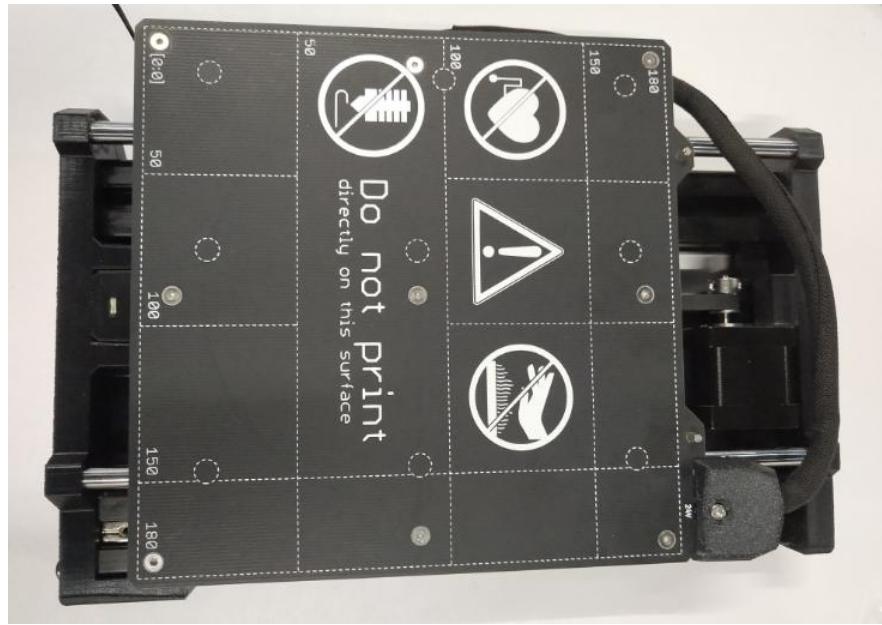


Figure 1.12.3

**Step 1-12-3:** After completing the assembly process, check whether the installation direction is correct and the screws are tightened.

## (13) Installation of display screen

**Step 1-13-1:** As shown in Figure 1.13.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

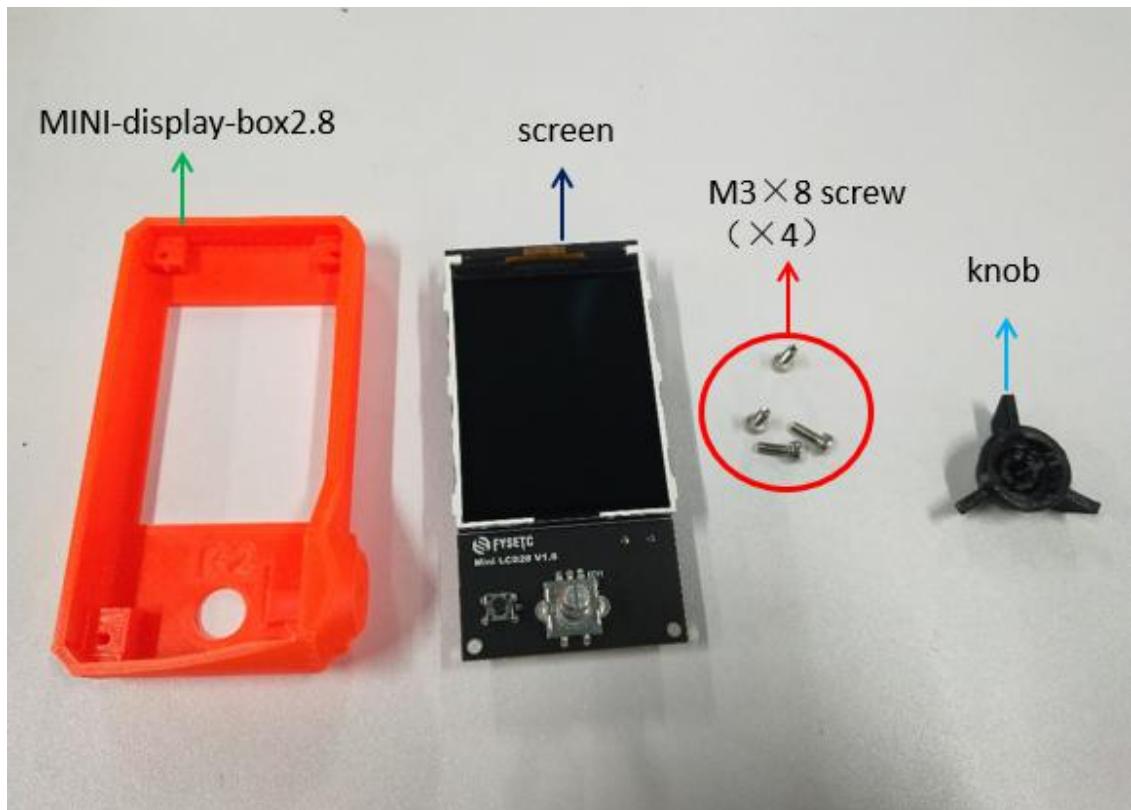


Figure 1.13.1

**Step 1-13-2:** As shown in Figure 1.13.2, install the display on the MINI-display-box2.8 with 4pcs M3 x 8 cylindrical head screws.

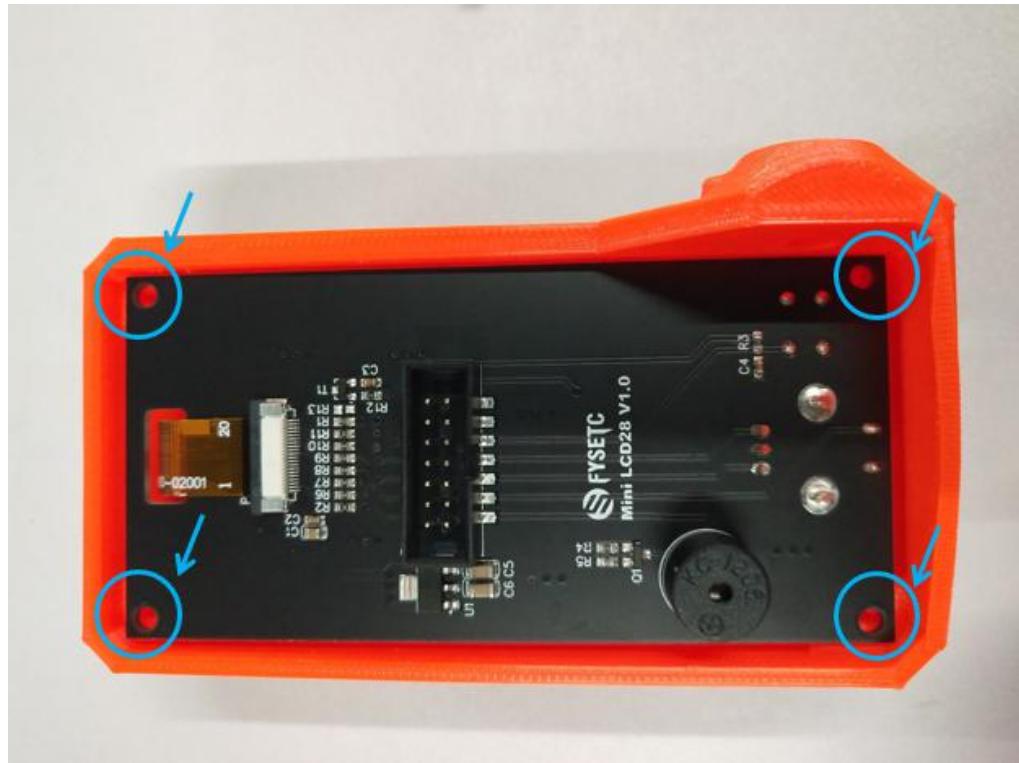


Figure 1.13.2



Figure 1.13.3

**Step 1-13-3:** As shown in Figure 1.13.4, install the display button on the display button, press it lightly to the end, rotate to check whether the button can be rotated and pressed.

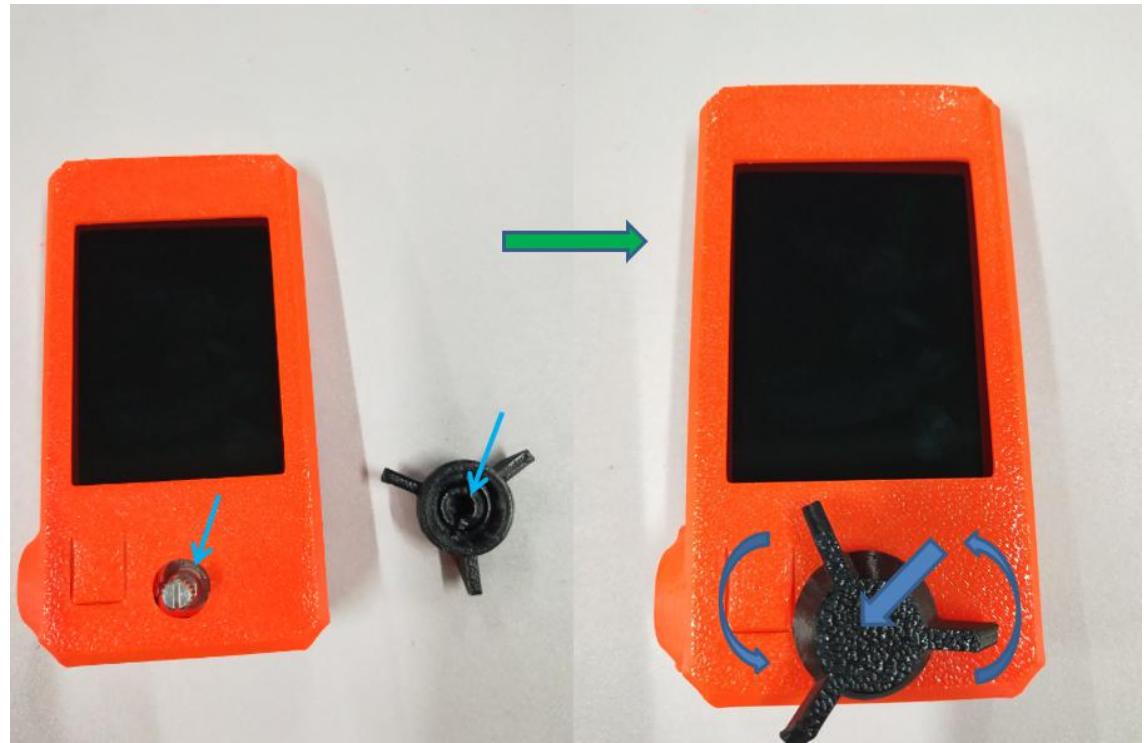


Figure 1.13.4

**Step 1-13-4:** After completing the assembly process, check whether the installation direction is correct and whether the screws are tightened.

#### (14) Install the display control panel (this step can be left in the final assembly)

**Step 1-14-1:** As shown in Figure 1.14.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.



Figure 1.14.1

**Step 1-14-2:** As shown in Figure 1.14.2, prepare the material base profile frame, install the display to the mounting hole on the MINI-y-plate-front, and use M3×12 cylindrical head screws to install it. Locked, the monitor can be rotated up and down to adjust the angle according to personal preference.

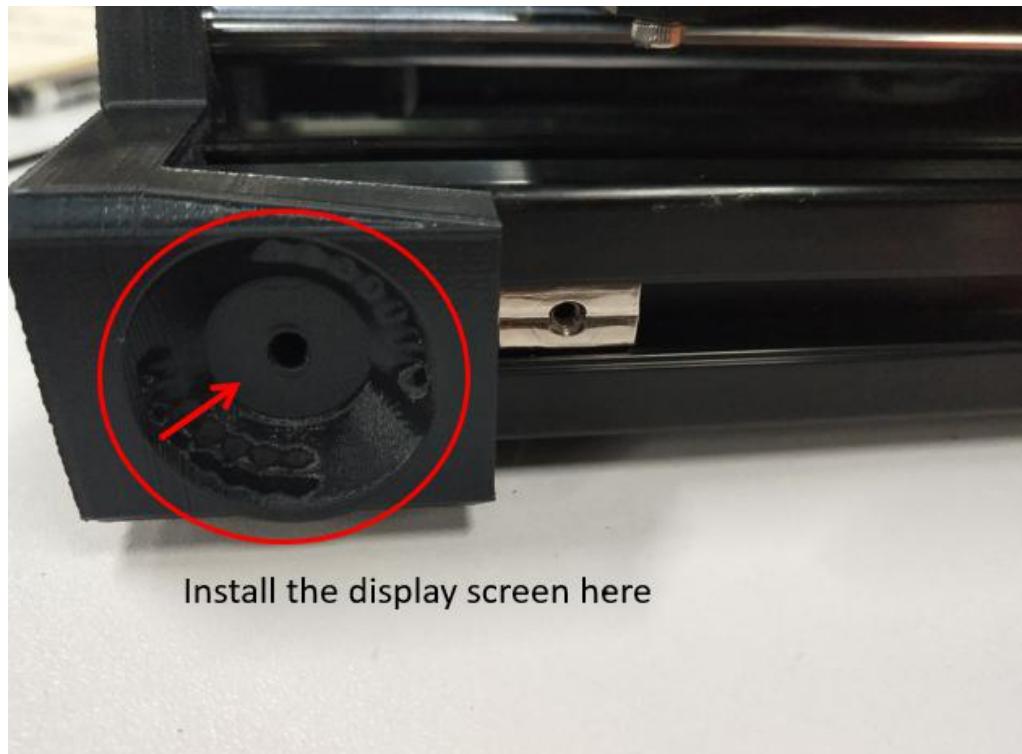


Figure 1.14.2

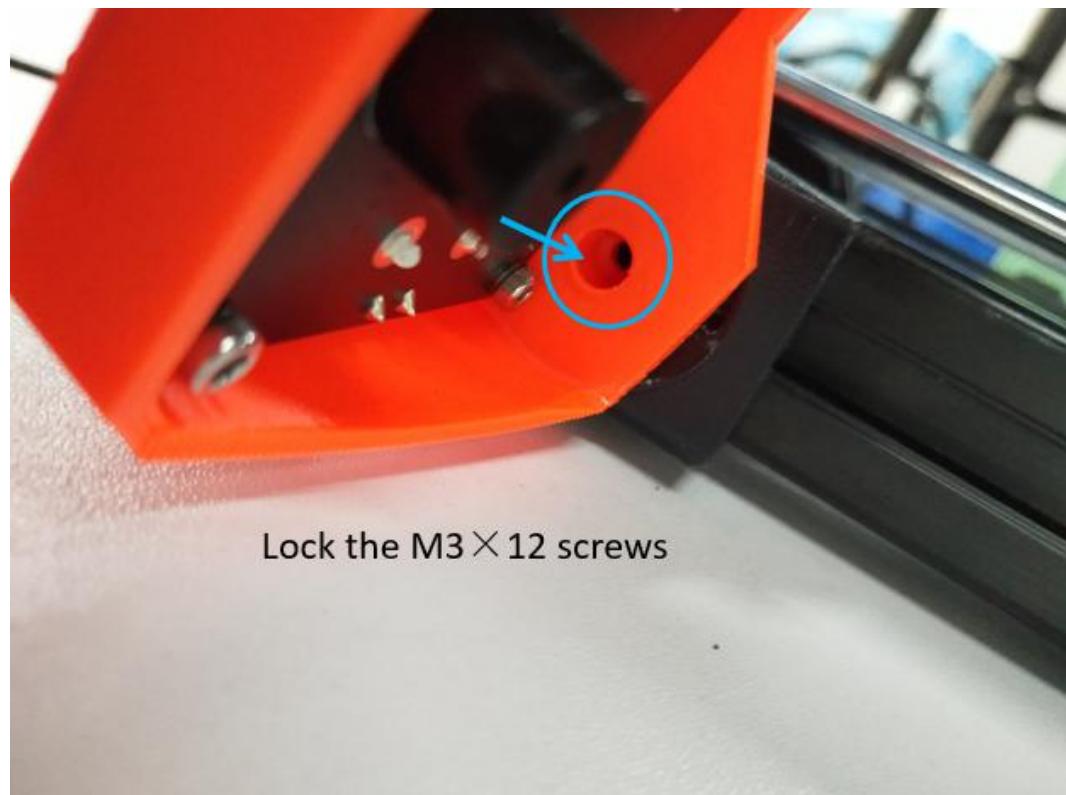


Figure 1.14.3



Figure 1.14.4

**Step 1-14-3:** After completing the assembly process, check whether the installation direction is correct and the screws are tightened.

## 2. X axis module assembly

### (1) Extruder drive motor assembly

**Step 2-1-1:** As shown in Figure 2.1.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

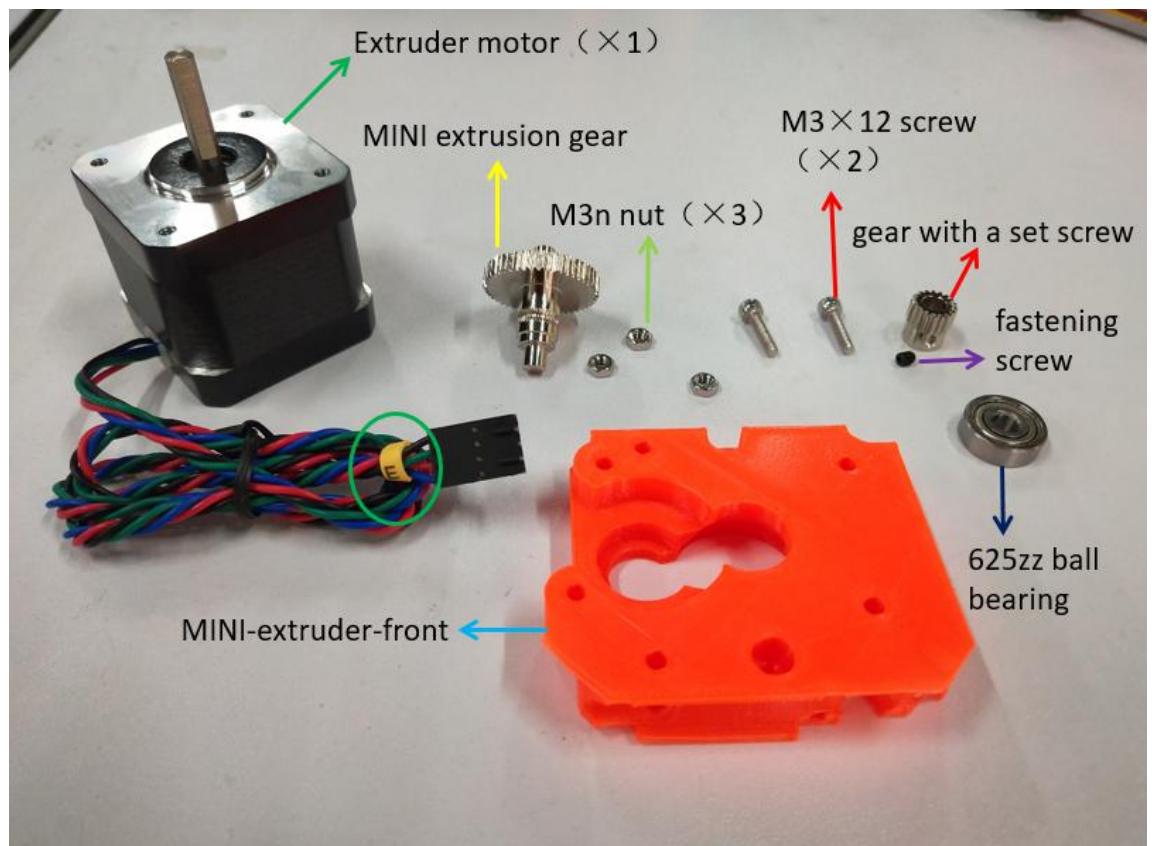


Figure 2.1.1

**Step 2-1-2:** As shown in Figure 2.1.2, insert 3pcs M3n nuts into the 3 hex slots of MINI-extruder-front.

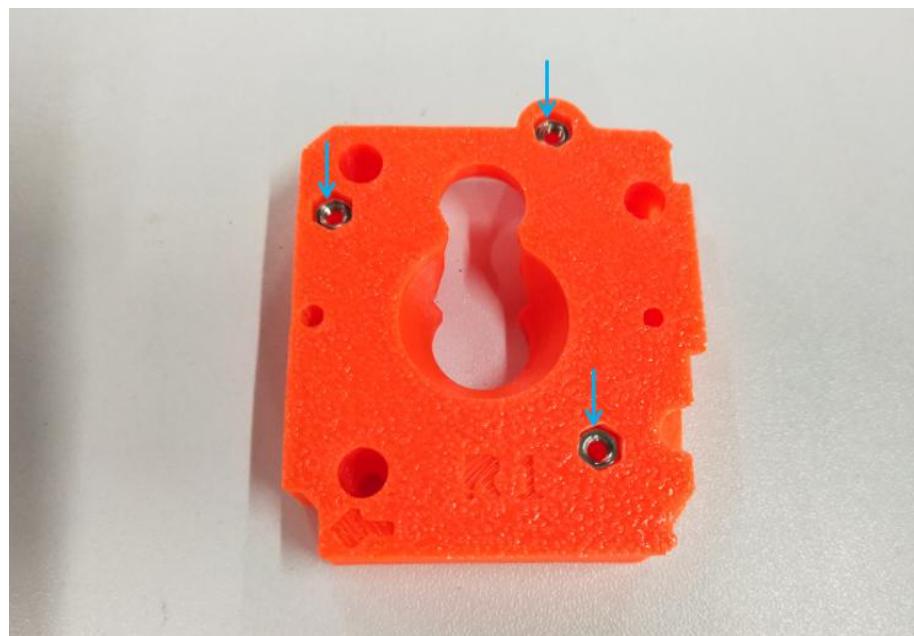


Figure 2.1.2

**Step 2-1-3:** As shown in Figure 2.1.3, embed a 625ZZ ball bearing into the bearing mounting hole on the MINI-extruder-front, paying attention that the end face of the bearing is flush with the end face of the print.

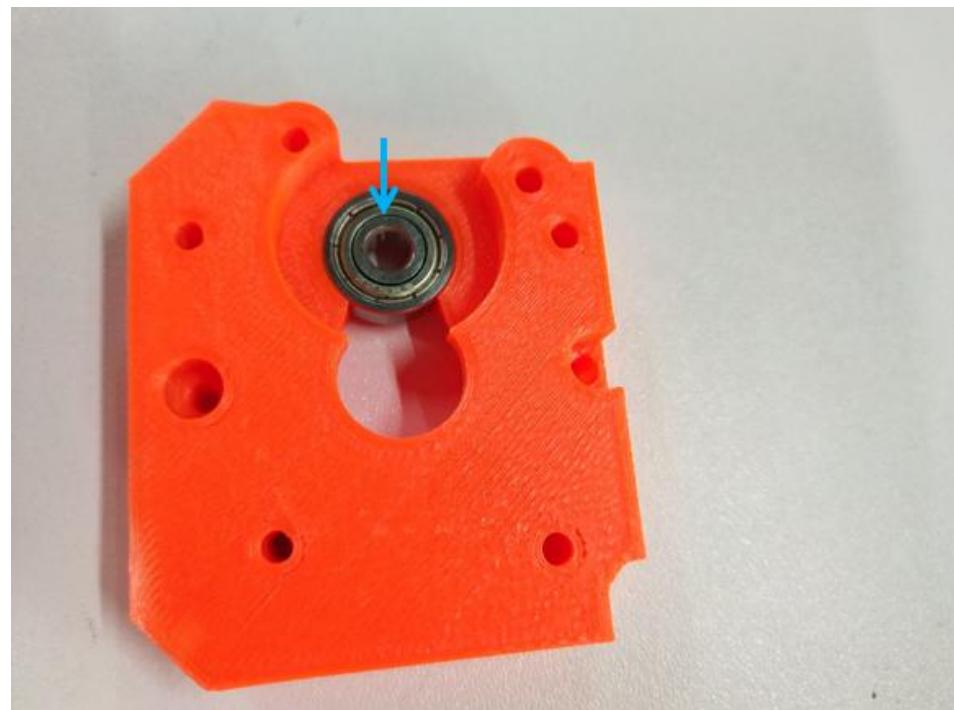


Figure 2.1.3

**Step 2-1-4:** As shown in Figure 2.1.4, install the extruded gear with set screw on the motor shaft, and the end face of the motor shaft is 8.6mm away from the end face of the gear. **Note that the plane part of the motor shaft must face the screw part of the gear belt set screw**, And then uses M3 × 4 set screw to lock the gear and motor shaft.

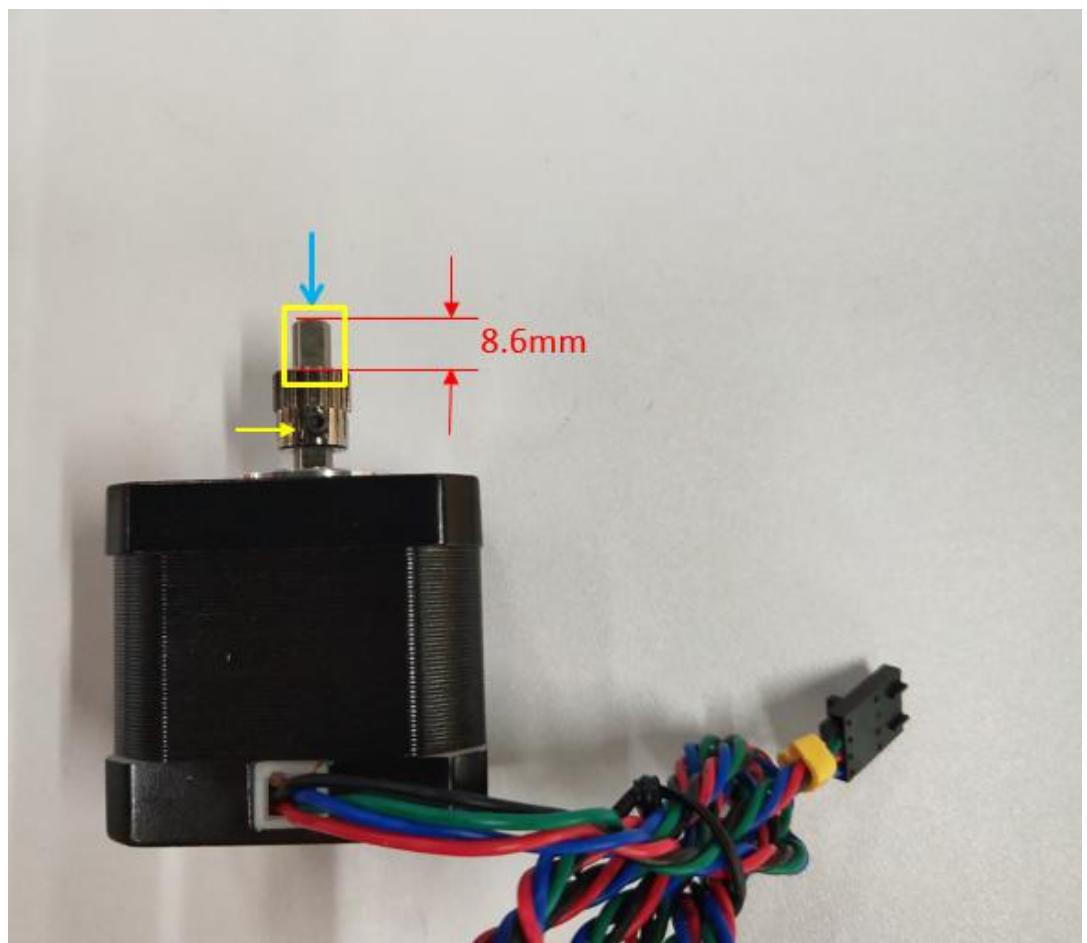


Figure 2.1.4

**Step 2-1-5:** As shown in Figure 2.1.5, install the MINI-extruder-front on the E-axis motor, pay attention to the position of the MINI-extruder-front and the motor line of the extruder, and then use 2pcs M3×12 cylinder head screws lock it.

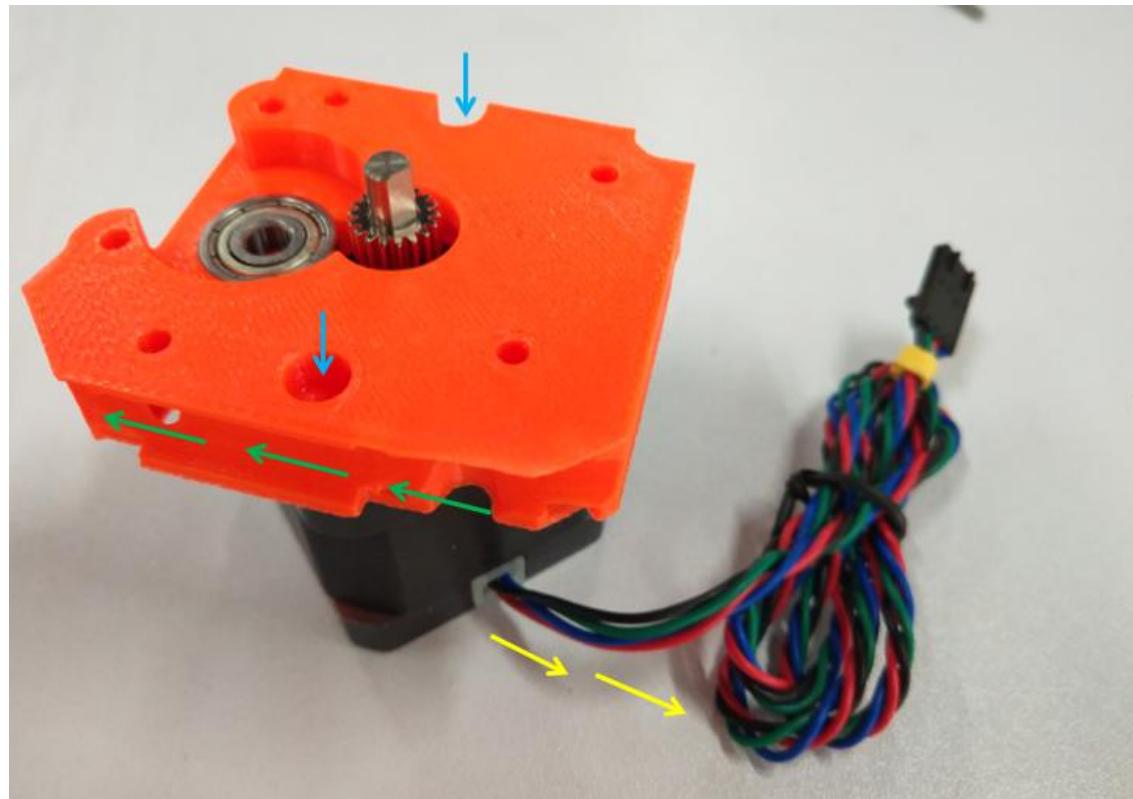


Figure 2.1.5

**Step 2-1-6:** Install the part of the short shaft end of the MINI extruded gear into the bearing installed on the MINI-extruder-front. Note that the end face of the MINI extruded gear must be flush with the end face of the drive gear on the motor shaft , as shown in Figure 2.1.7.

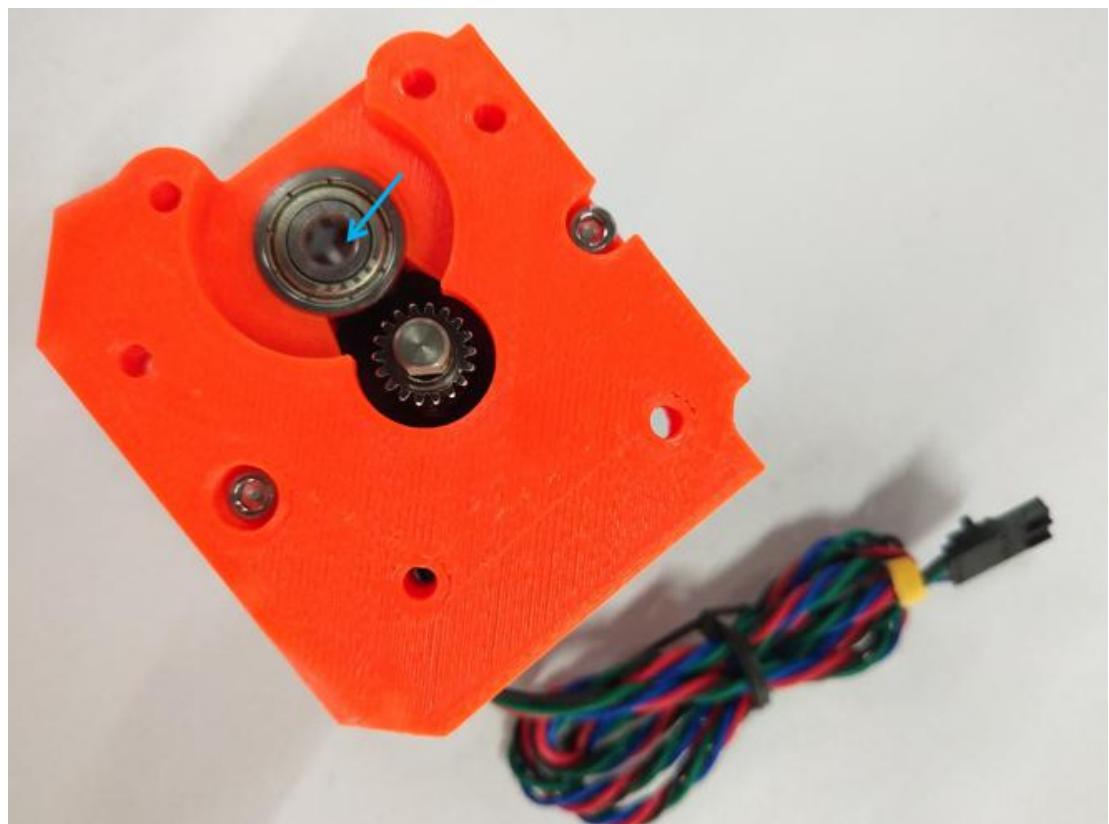


Figure 2.1.6

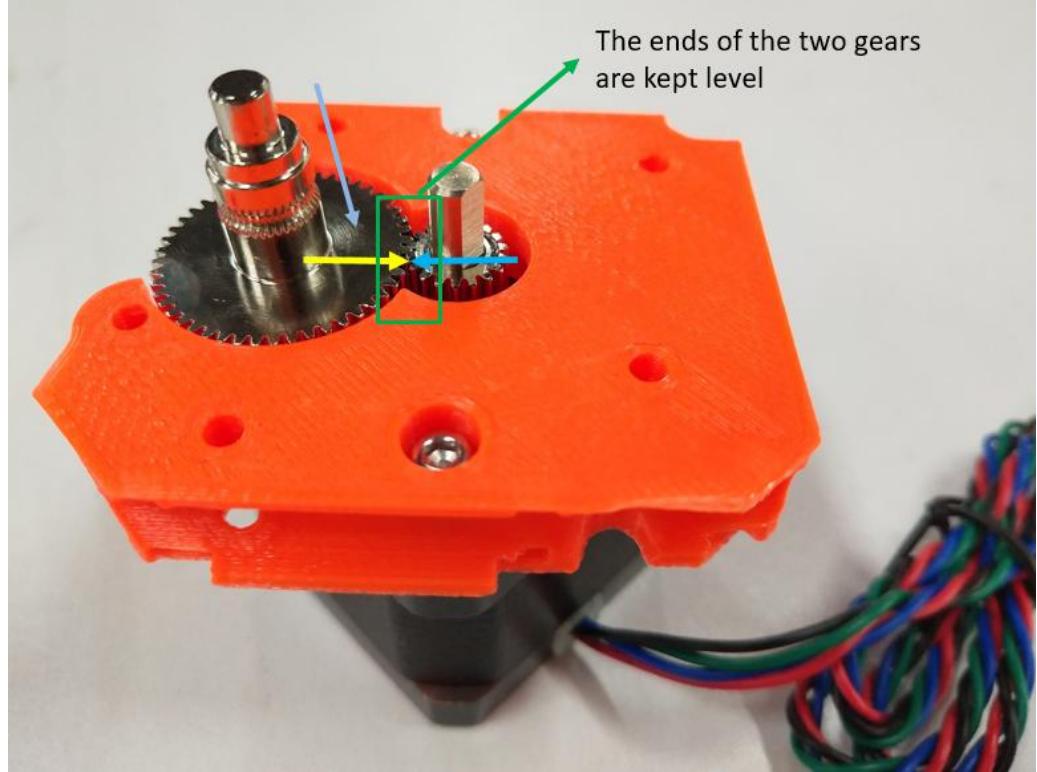


Figure 2.1.7

**Step 2-1-7:** After completing the assembly process, check whether the installation direction is correct and whether the screws are tightened.

## (2) Installation of compression bar extruder

**Step 2-2-1:** As shown in Figure 2.2.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

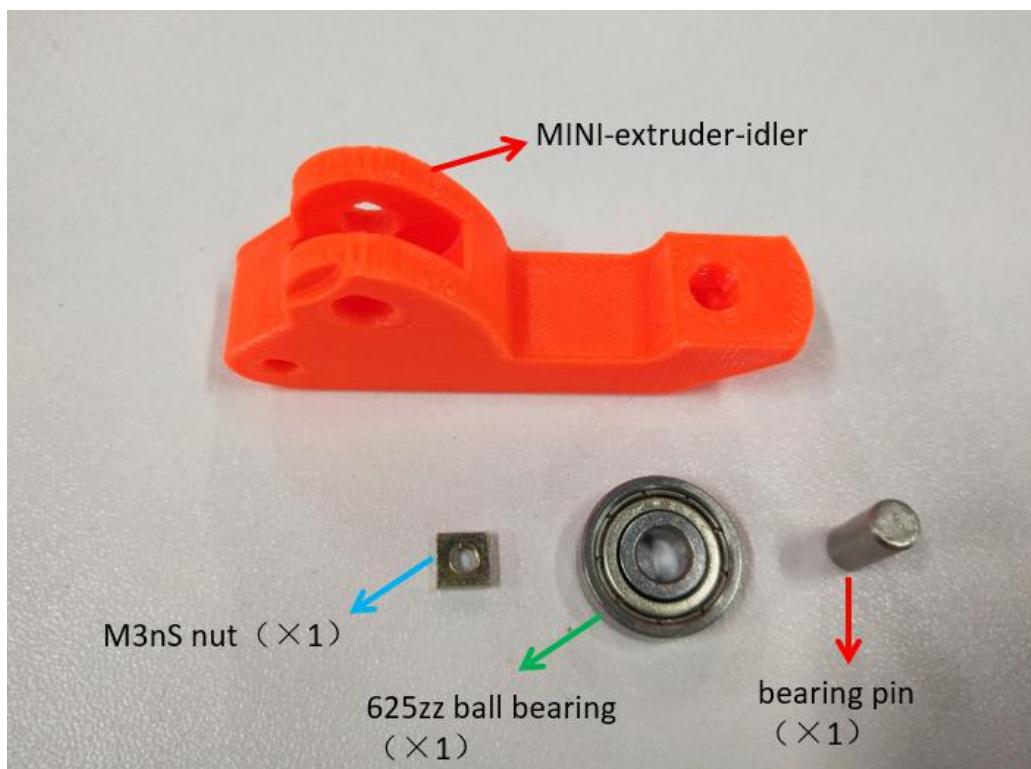


Figure 2.2.1

**Step 2-2-2:** As shown in Figure 2.2.2, insert a square nut into the mounting slot on the MINI-extruder-idler until the center hole of the square nut is concentric with the through hole of the print.



Figure 2.2.2

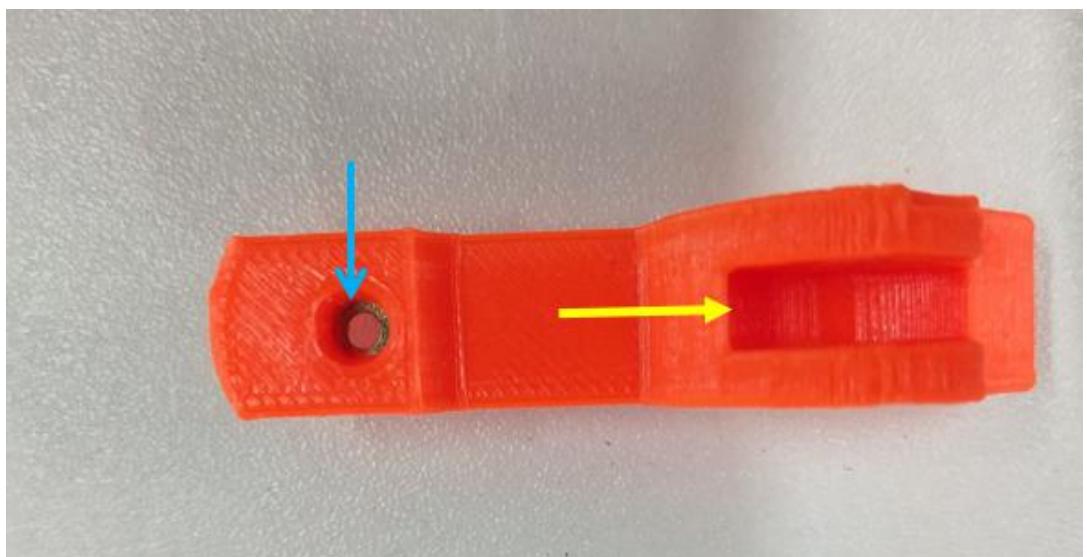


Figure 2.2.3

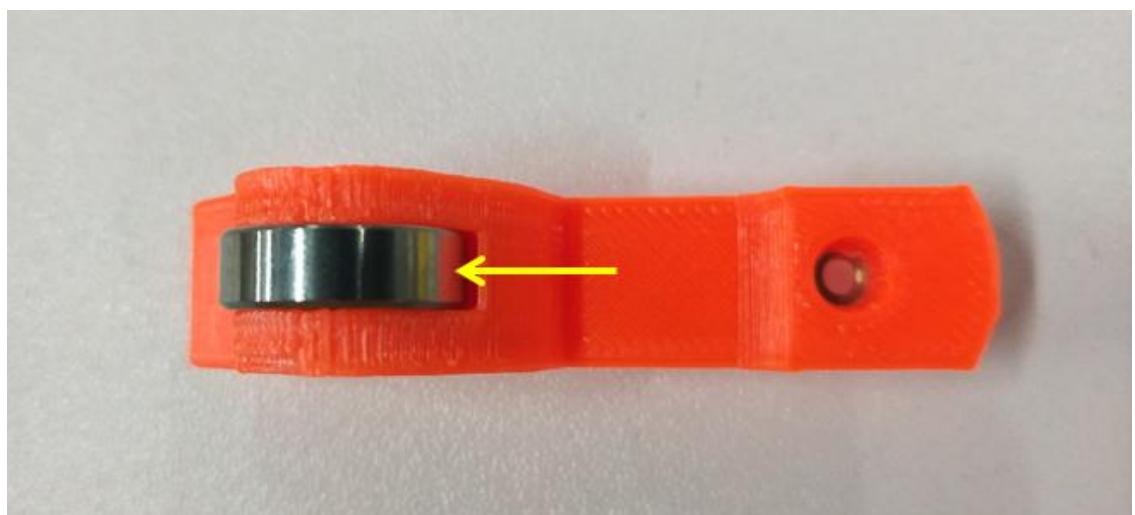


Figure 2.2.4

**Step 2-2-3:** As shown in Figure 2.2.4, install the 625ZZ ball bearing into the bearing mounting slot on the MINI-extruder-idler, and then tap the bearing pin into the pin hole on the MINI-extruder-idler, Until the end face of the bearing pin is flush with the end face of the print, as shown in Figure 2.2.5.



Figure 2.2.5

**Step 2-2-4:** After completing the assembly process, check whether the installation direction is correct and whether the bearing can slide smoothly.

### (3) Installation of MINI-extruder-rear

**Step 2-3-1:** As shown in Figure 2.3.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

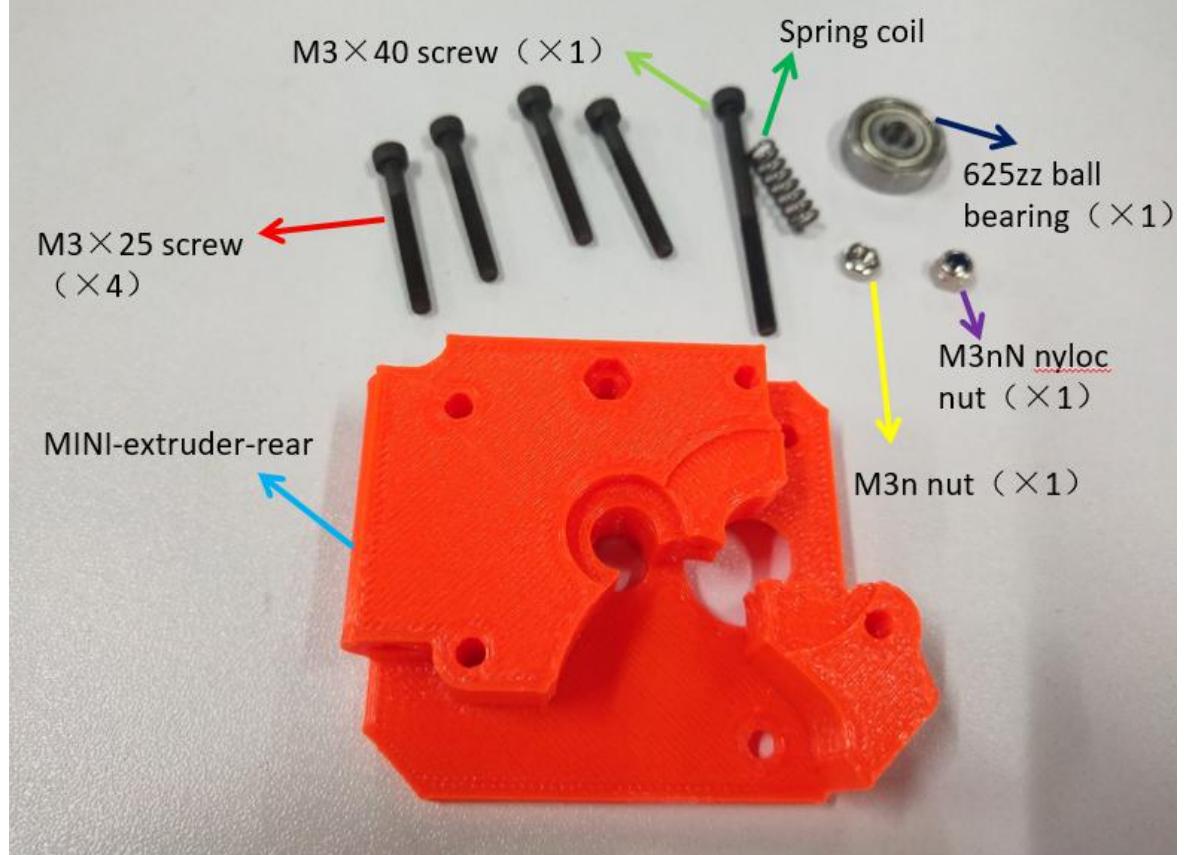


Figure 2.3.1

**Step 2-3-2:** As shown in Figure 2.3.2, insert an M3 hex nut into the hex groove on the MINI-extruder-rear.

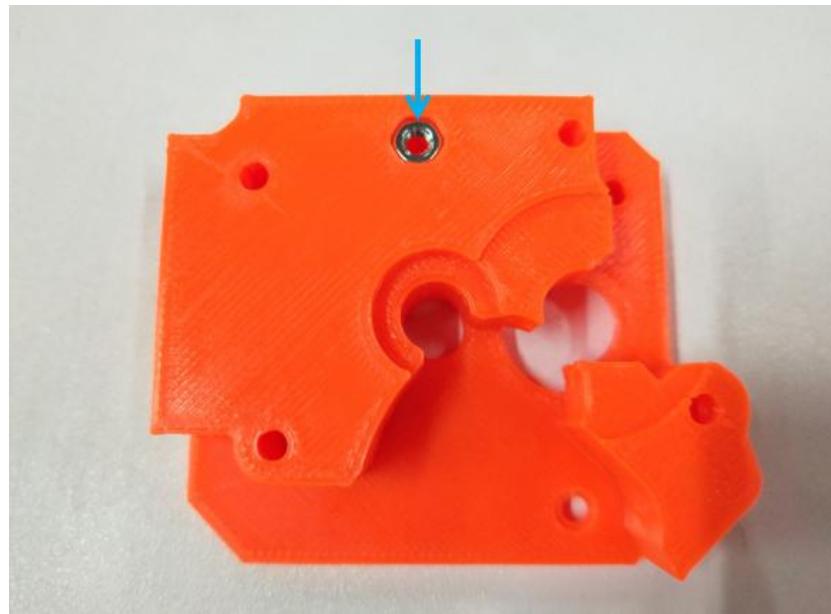


Figure 2.3.2

**Step 2-3-3:** As shown in Figure 2.3.3, insert an M3 lock nut and a 625ZZ bearing into the notch on the MINI-extruder-rear. Note that the end face of the bearing must be flush with the end face of the print.

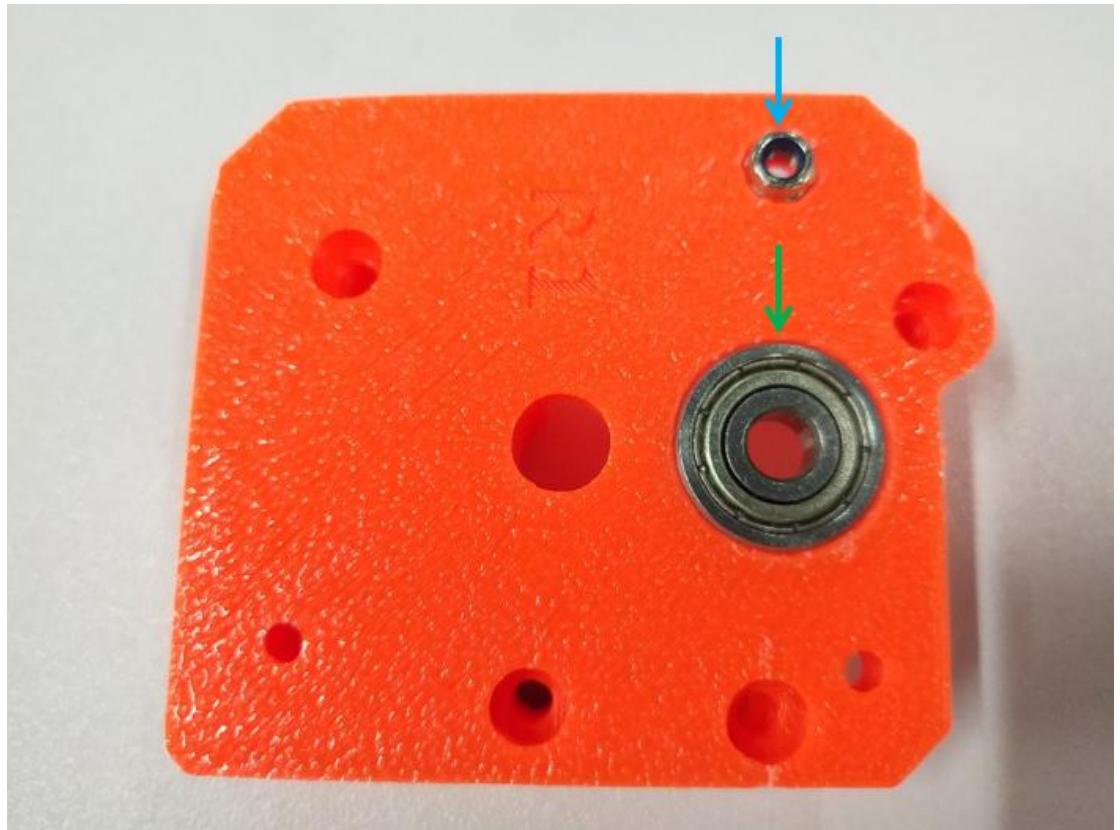


Figure 2.3.3

**Step 2-3-4:** As shown in Figure 2.3.4, prepare the installed MINI-extruder-front and MINI-extruder-idler and prepare for the next assembly.

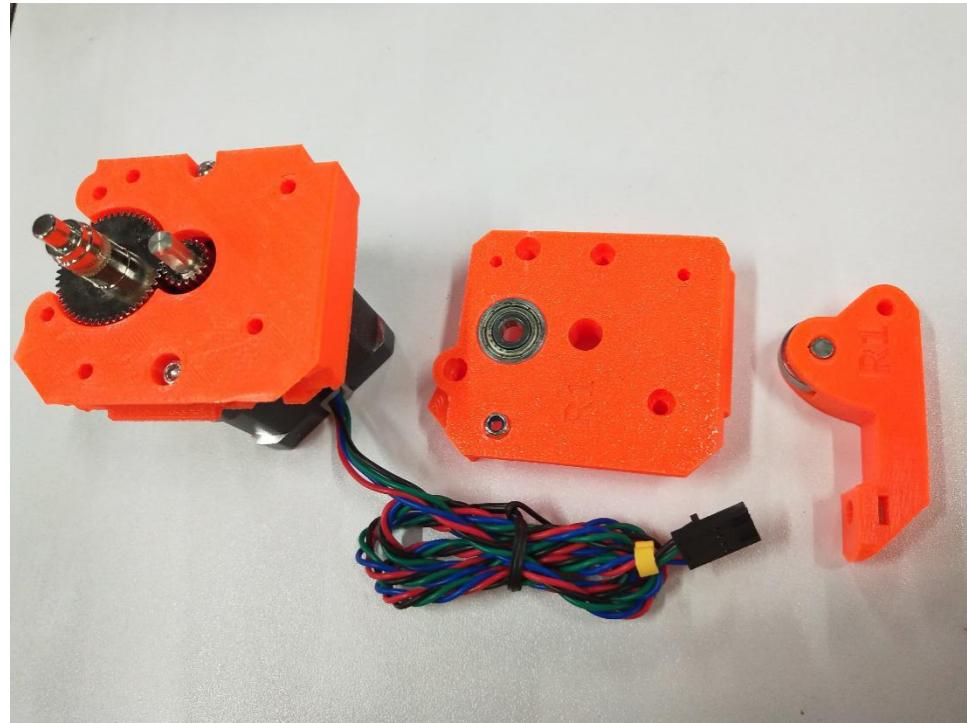


Figure 2.3.4

**Step 2-3-5:** Install MINI-extruder-idler on MINI-extruder-front as shown in Figure 2.3.5, and then install MINI-extruder-rear on MINI-extruder-idler.

As shown in Figure 2.3.6:

- A: The bearing hole is aligned with the extruded gear shaft on the MINI-extruder-front.
- B: Use 3pcs M3 × 25 cylindrical head bolts to tighten it.

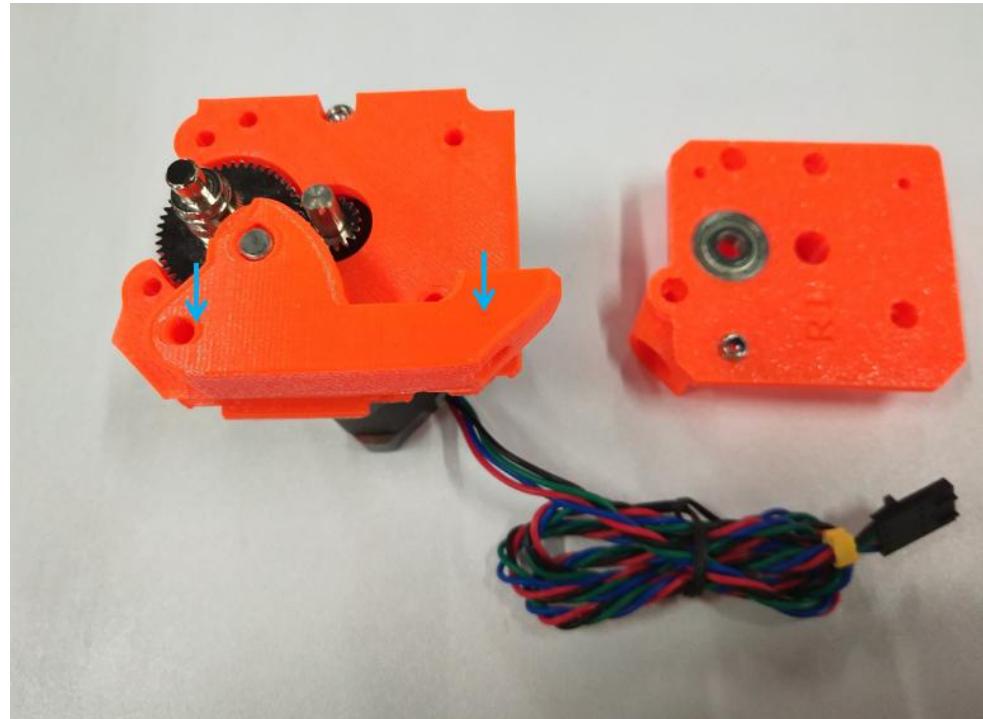


Figure 2.3.5



Figure 2.3.6

**Step 2-3-6:** As shown in Figure 2.3.7, use a M3 × 25 cylindrical head bolt to lock the MINI-extruder-idler.

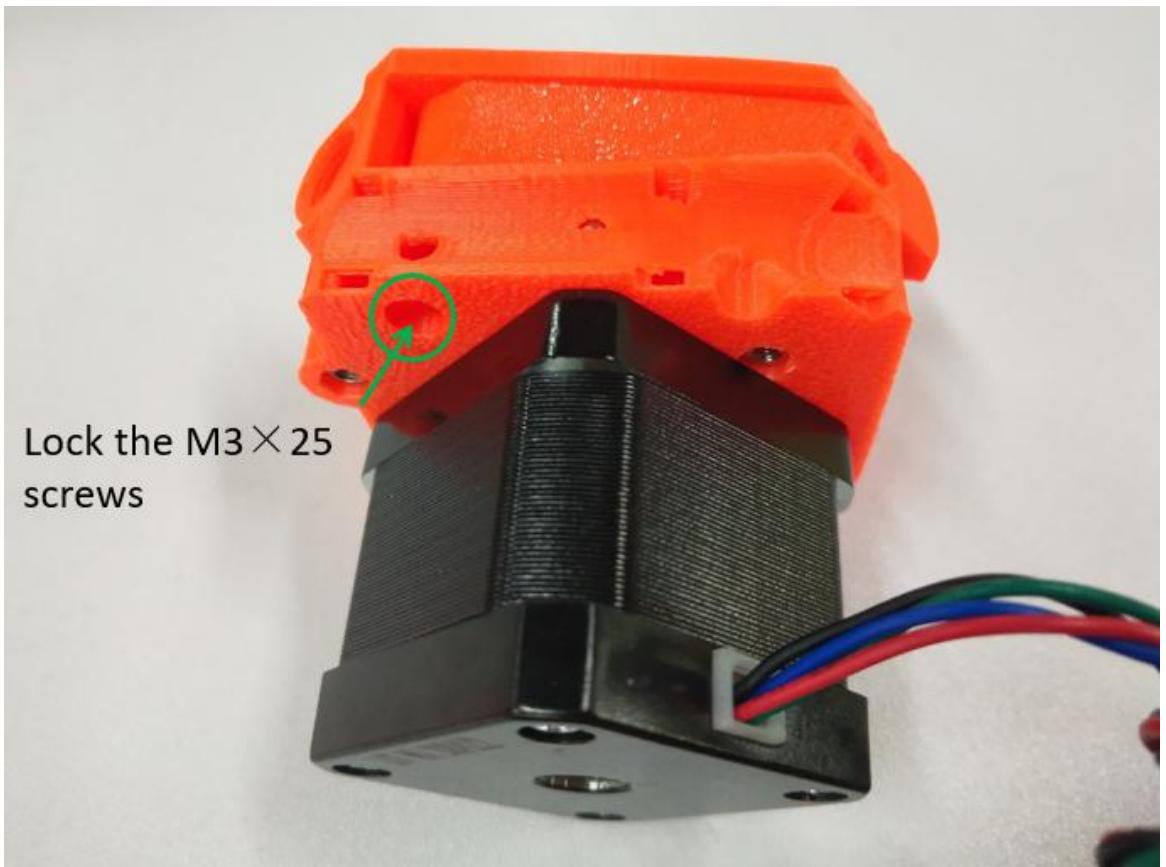


Figure 2.3.7



Figure 2.3.8

**Step 2-3-7:** As shown in Figure 2.3.9, use a M3 × 40 cylindrical head bolt to pass through the spring and lock it into the threaded hole on the MINI-extruder-idler through the MINI-extruder-rear. Use the elasticity of the spring to adjust the pressure when the compression bar presses the filament.

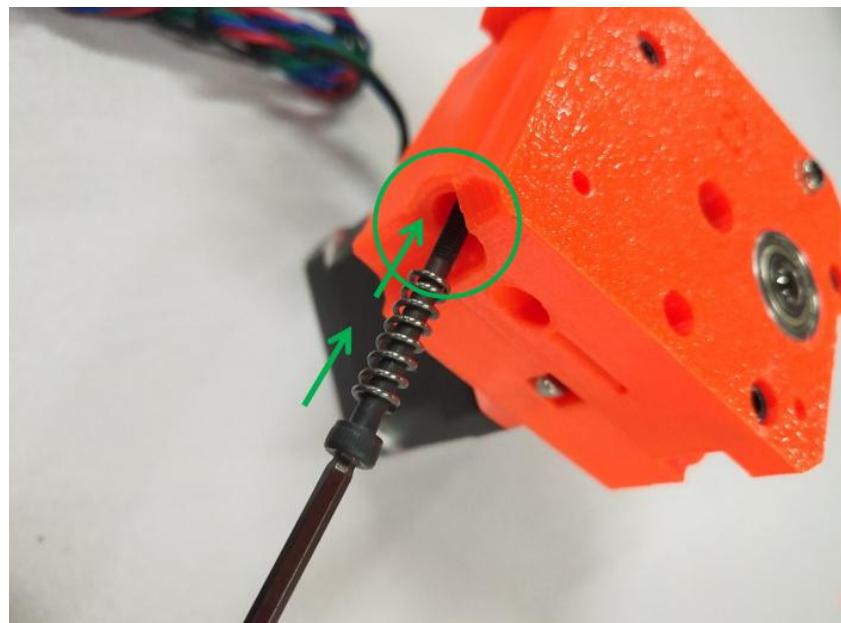


Figure 2.3.9



Figure 2.3.10

**Steps 2-3-10:** After completing the assembly process, check whether the installation direction is correct and whether the bolts are tightened.

## (4) Installation of Teflon tube & extruder

**Step 2-4-1:** As shown in Figure 2.4.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

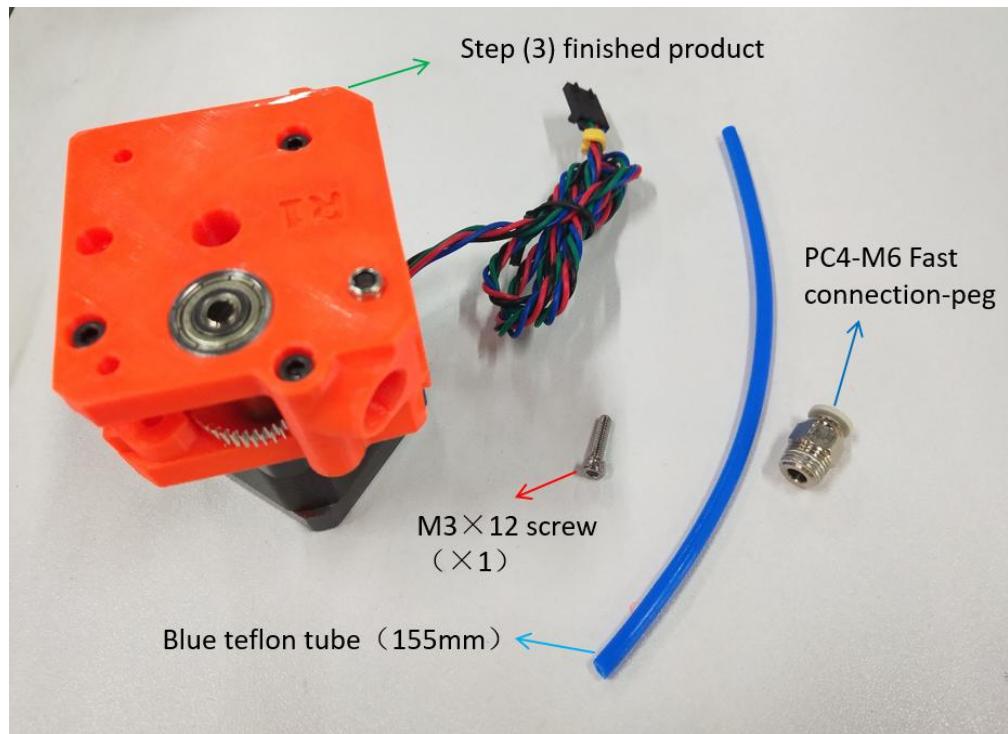


Figure 2.4.1

**Step 2-4-2:** as shown in Figure 2.4.2

A: Insert the blue Teflon tube onto the MINI-extruder-rear to the bottom. (Before assembling, it must be ensured that the end face of the Teflon tube is flush)

B: And lock it with a M3 × 12 cylindrical head bolt.

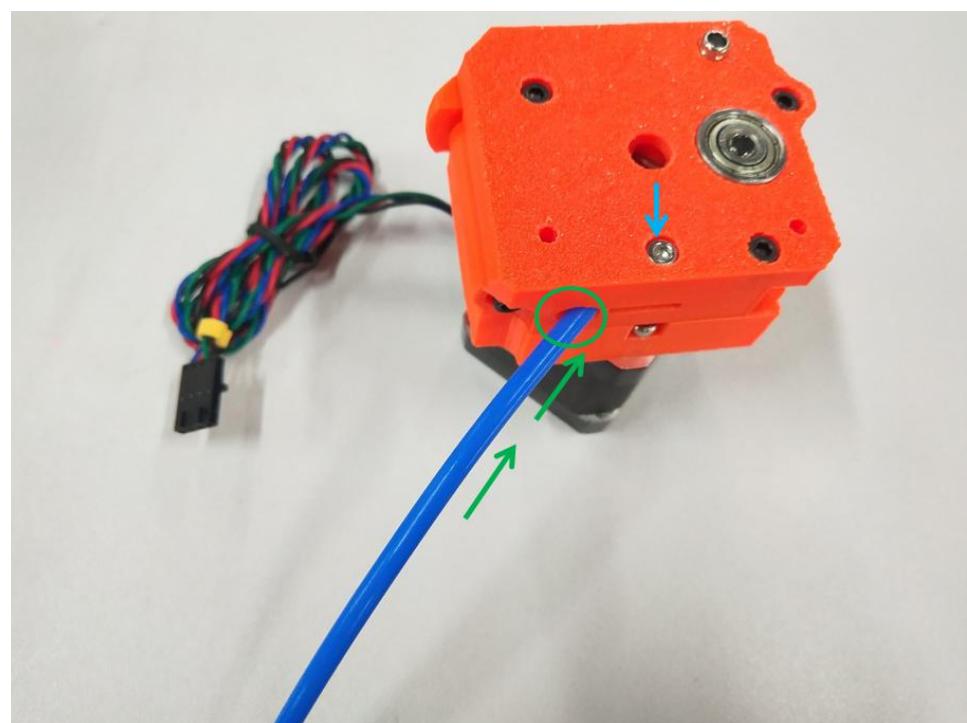


Figure 2.4.2

**Step 2-4-3:** As shown in Figure 2.4.3, screw the fast connection-peg into the MINI-extruder-rear, and it is required to screw the fast connection-peg to the end.

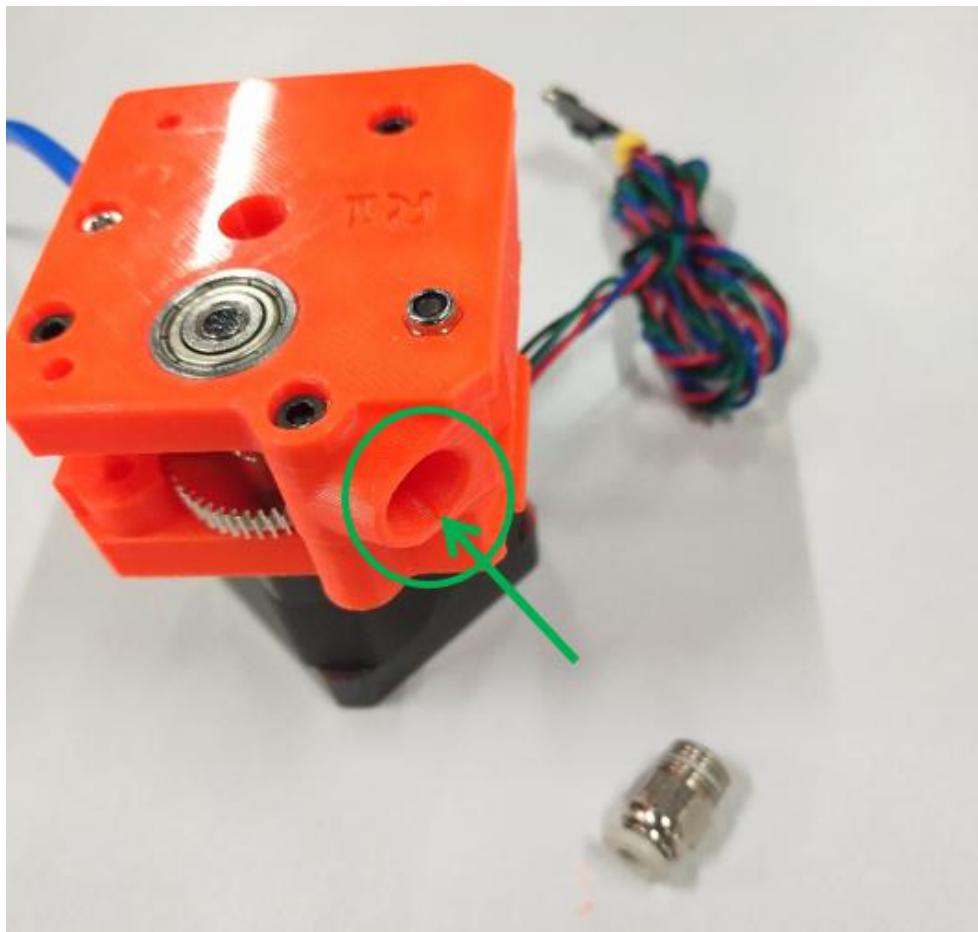


Figure 2.4.3

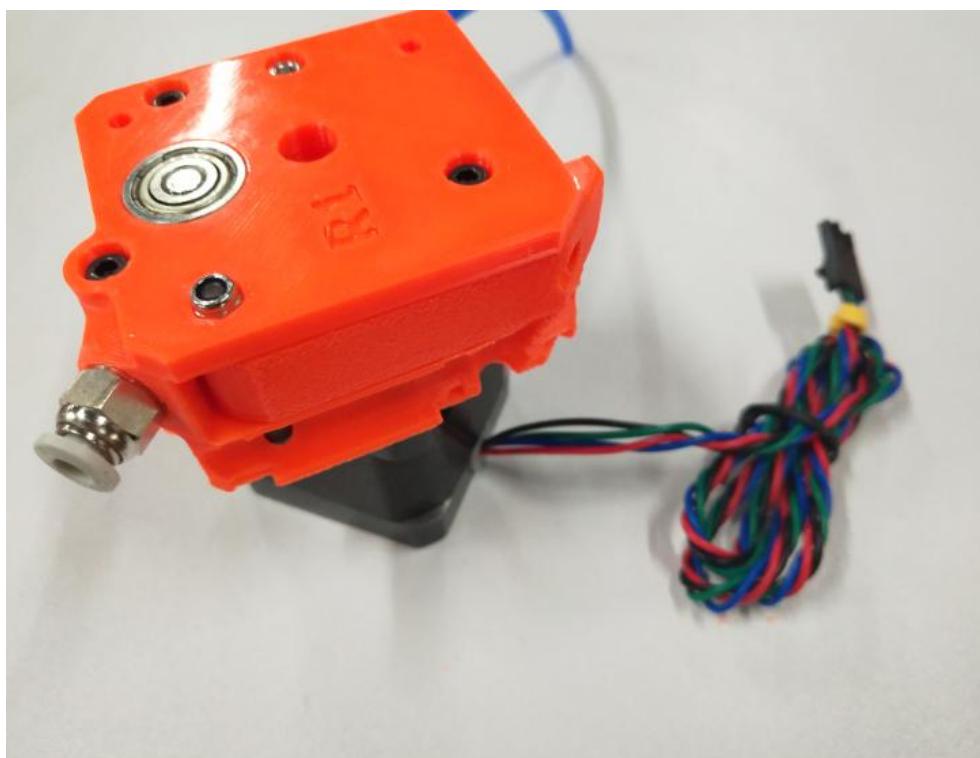


Figure 2.4.3

**Step 2-4-4:** After completing the assembly process, check whether the installation direction is correct and whether the bolts are tightened.

## (5) Assembly of MINI-z-carriage-front

**Step 2-5-1:** As shown in Figure 2.5.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

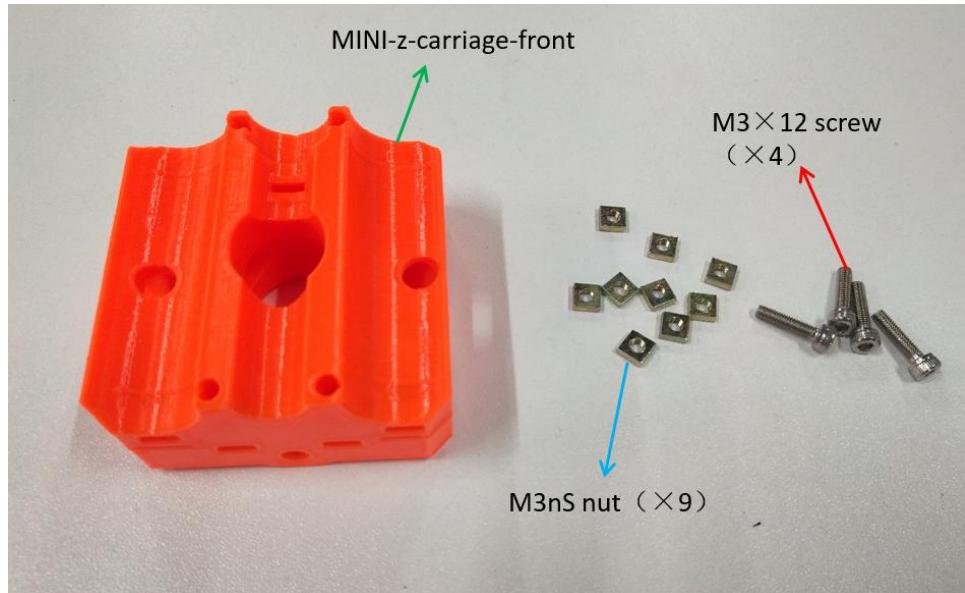


Figure 2.5.1

**Step 2-5-2:** As shown in Figure 2.5.2, embed 9 M3 square nuts into the square nut mounting slots on the MINI-z-carriage-front until the threaded holes on the square nut and the through holes remain concentric.

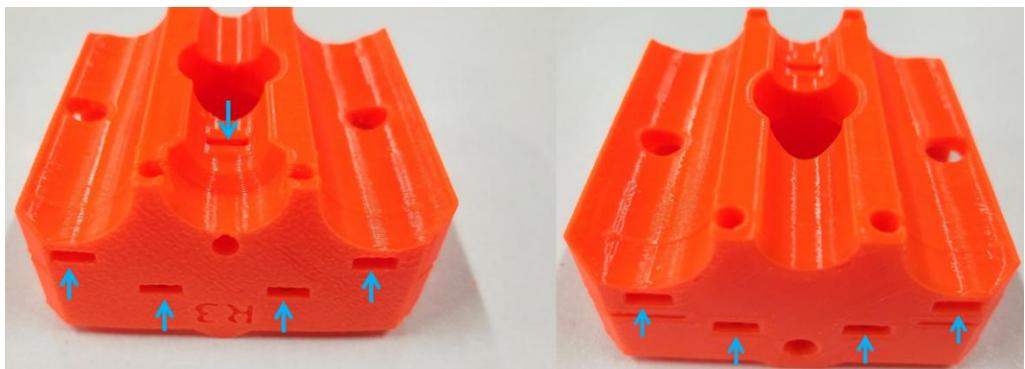


Figure 2.5.2



Figure 2.5.3

**Step 2-5-3:** As shown in Figure 2.5.4, pre-tighten 4pcs M3×12 cylindrical head bolts (to facilitate installation in the next step) to the four bolt holes on the MINI-z-carriage-front in position.

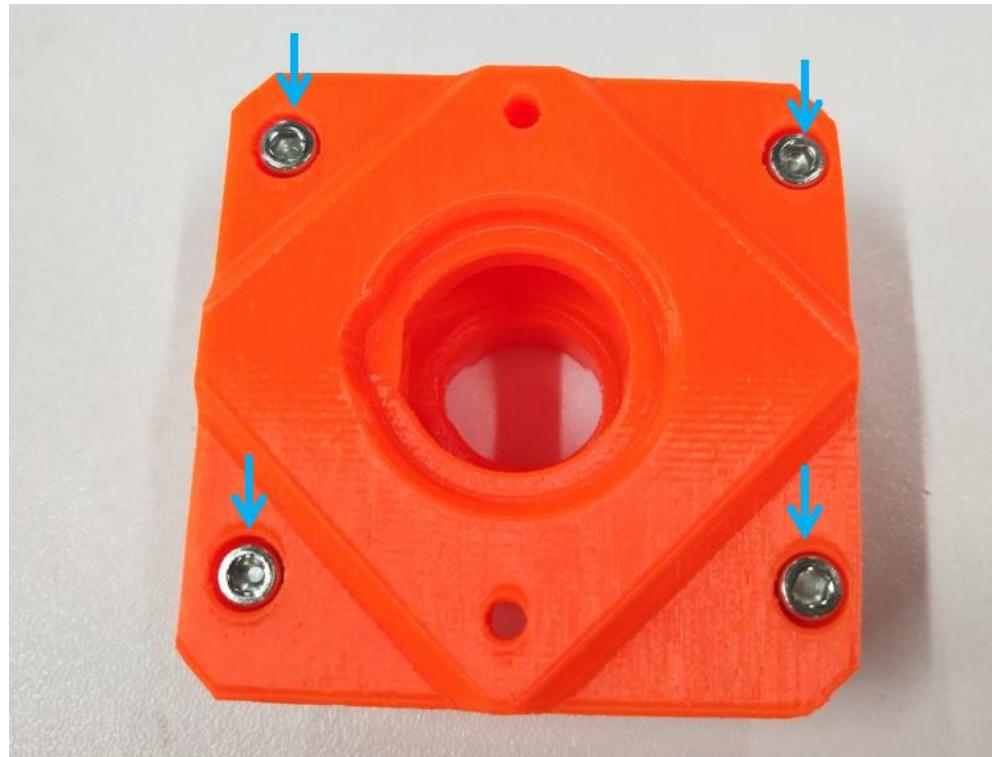


Figure 2.5.4

**Step 2-5-4:** After completing the assembly process, check the installation direction is correct.

## (6) Assembly of MINI-z-carriage-rear

**Step 2-6-1:** As shown in Figure 2.6.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

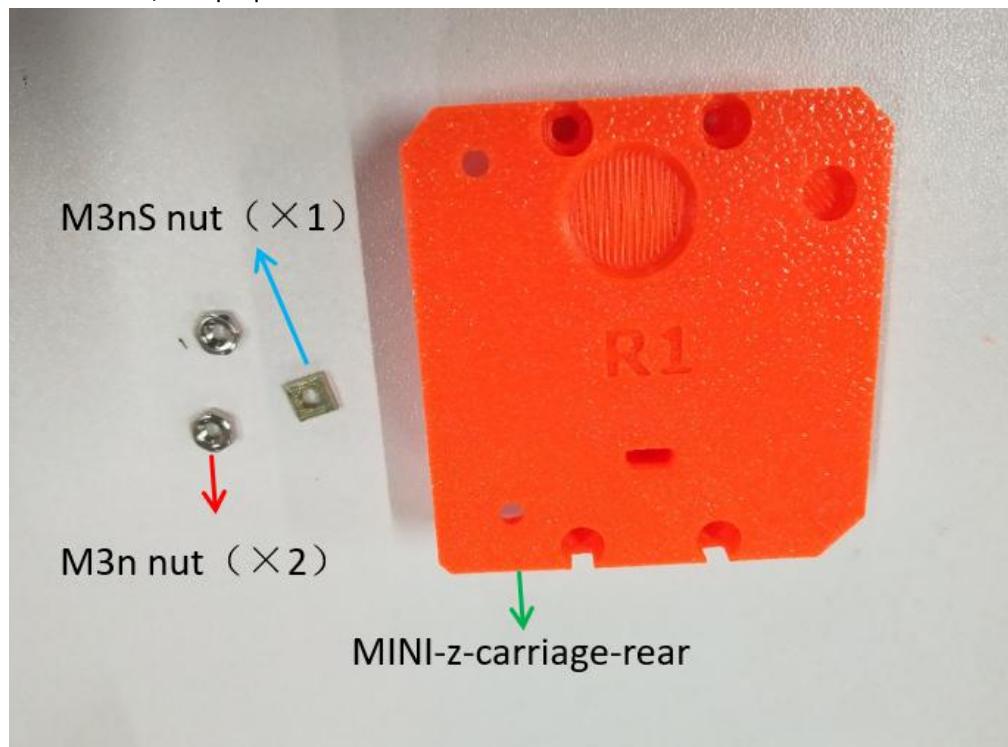


Figure 2.6.1

**Step 2-6-2:** As shown in Figure 2.6.2, insert an M3 square nut into the square slot on the MINI-z-carriage-rear, and on the other side insert 2pcs M3 hexagon nut into the hexagonal groove.

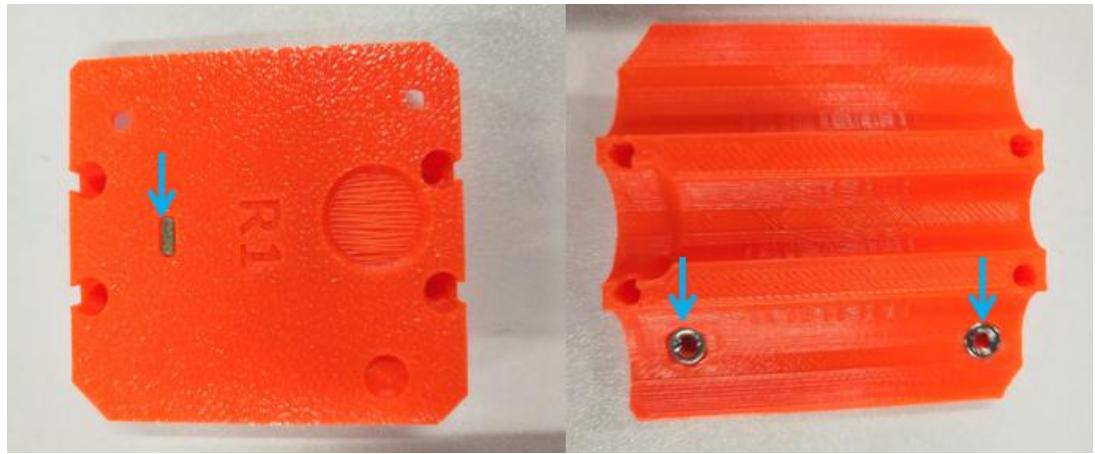


Figure 2.6.2

**Step 2-6-3:** After completing the assembly process, check whether the installation direction is correct and whether the bolts are tightened.

## (7) Assembly of Z-axis slider

**Step 2-7-1:** As shown in Figure 2.7.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

project name	specification	quantity	unit	reference
MINI-z-carriage-front		1	pcs	A
MINI-z-carriage-rear		1	pcs	B
Y-axis motor	42 stepper motor	1	pcs	C
Linear bearing	LM10LUU D10mm d19mm h55mm	2	pcs	D
GT2-16 pulley	GT2-16	1	pcs	E
feed screw nut		1	pcs	F
screws	M3×12	2	pcs	G
screws	M3×20	2	pcs	H
screws	M3×30	4	pcs	I

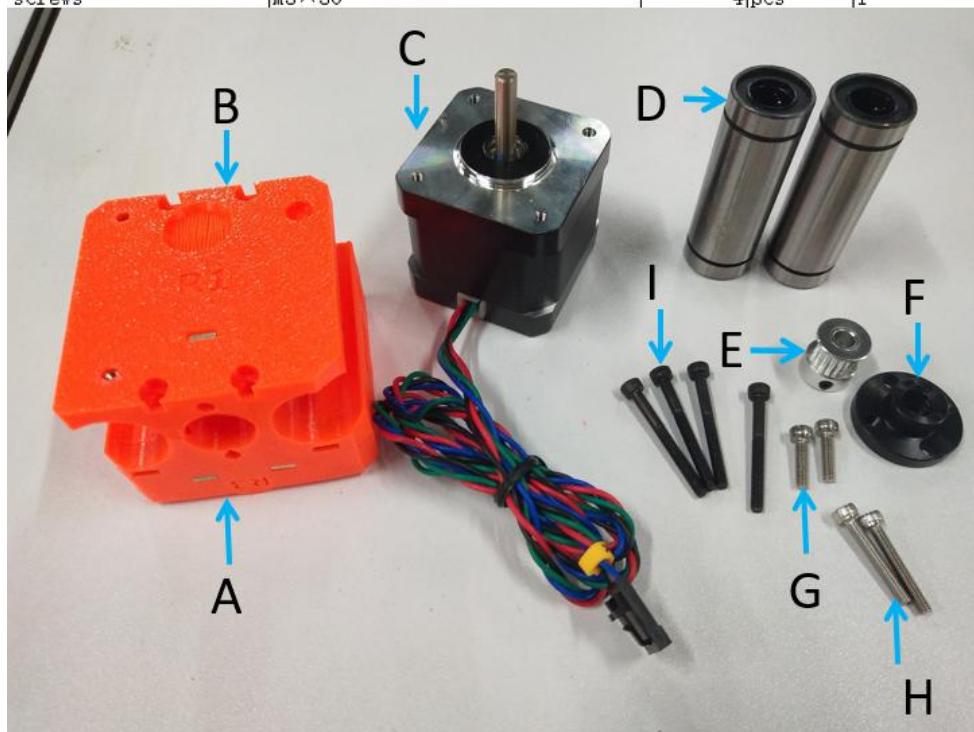


Figure 2.7.1

**Step 2-7-2:** As shown in Figure 2.7.2, install the synchronous wheel on the X-axis motor shaft, the end surface of the synchronous wheel is 4.8mm away from the end surface of the motor shaft, and tighten the fastening screws. (Note that the plane part of the motor shaft is required to face the set screw)



Figure 2.7.2

**Step 2-7-3:** as shown in Figure 2.7.3

- A: Install the MINI-z-carriage-front to the X-axis motor in the direction shown in Figure. (Pay attention to the installation direction of the motor cable and the print)
- B: Use 2pcs M3 × 12 cylindrical head bolts to lock it.
- C: Install the two linear bearings into the two grooves on the MINI-z-carriage-front. It is required that both ends of the linear bearing must be flush with the two end faces of the print, as shown in Figure 2.7.4.

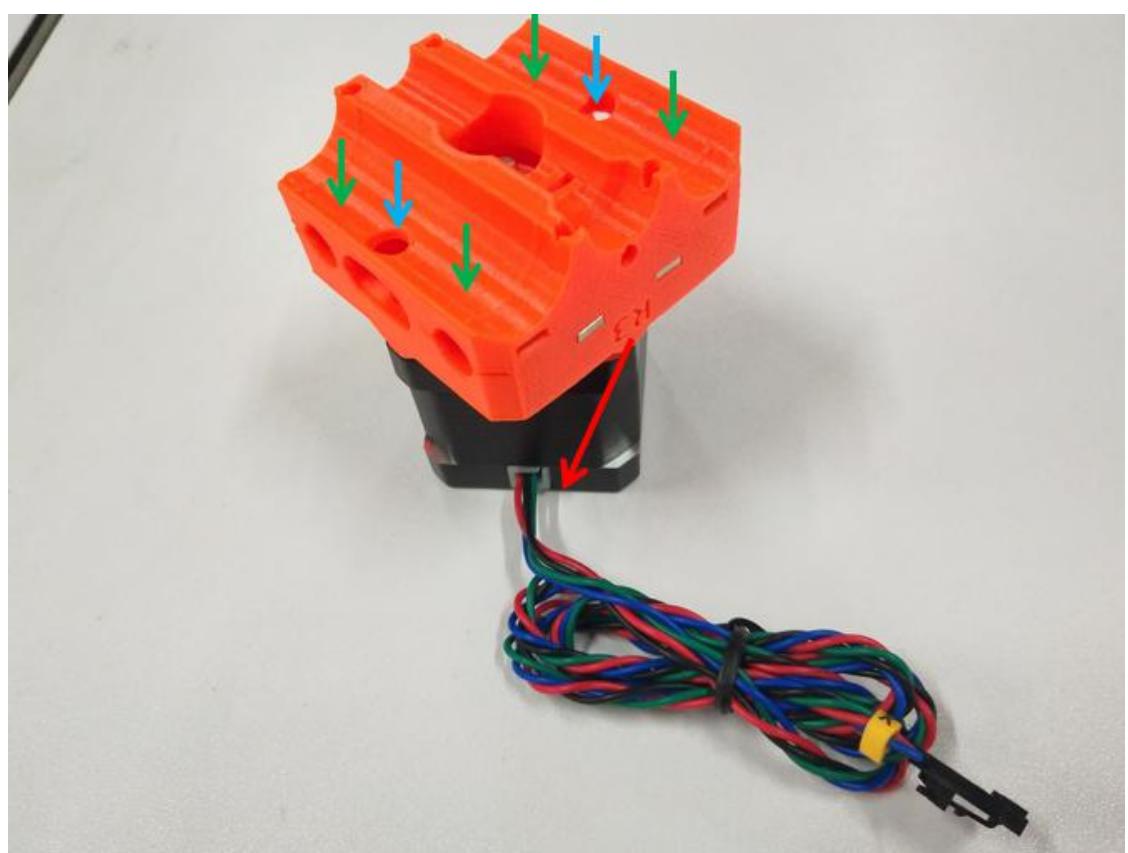


Figure 2.7.3

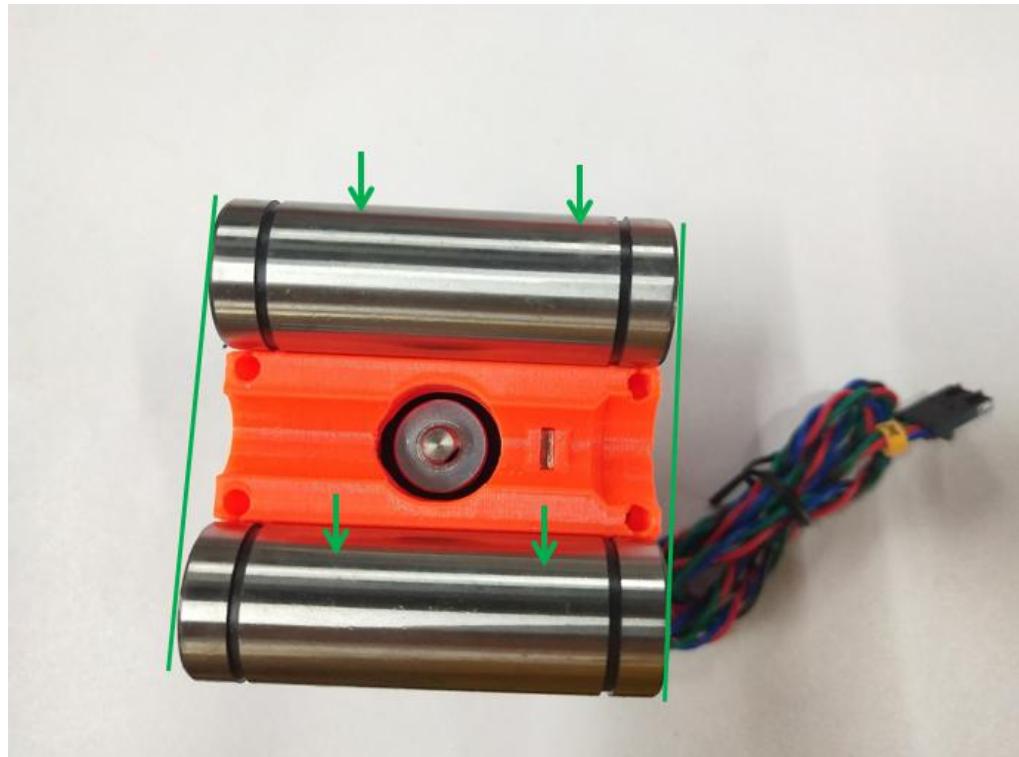


Figure 2.7.4

**Step 2-7-4:** As shown in Figure 2.7.5, install MINI-z-carriage-rear on the finished product assembled in the previous step, and lock it with 4pcs M3×30 cylindrical head bolts.



Figure 2.7.5

**Step 2-7-5:** As shown in Figure 2.7.6, install the screw nut into the finished product assembled in the previous step, and lock it with 2pcs M3×20 cylindrical head bolts.

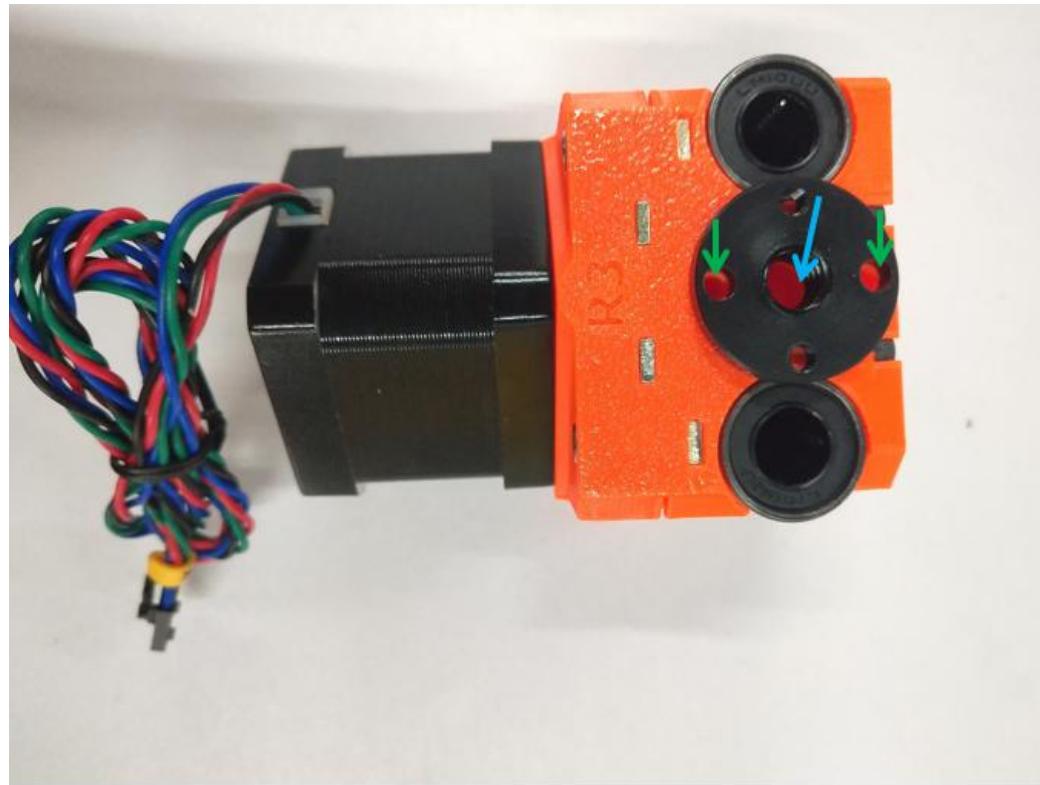


Figure 2.7.6



Figure 2.7.7

**Step 2-7-6:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

## (8) Combination of X-axis drive and Z-axis slider

**Step 2-8-1:** As shown in Figure 2.8.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

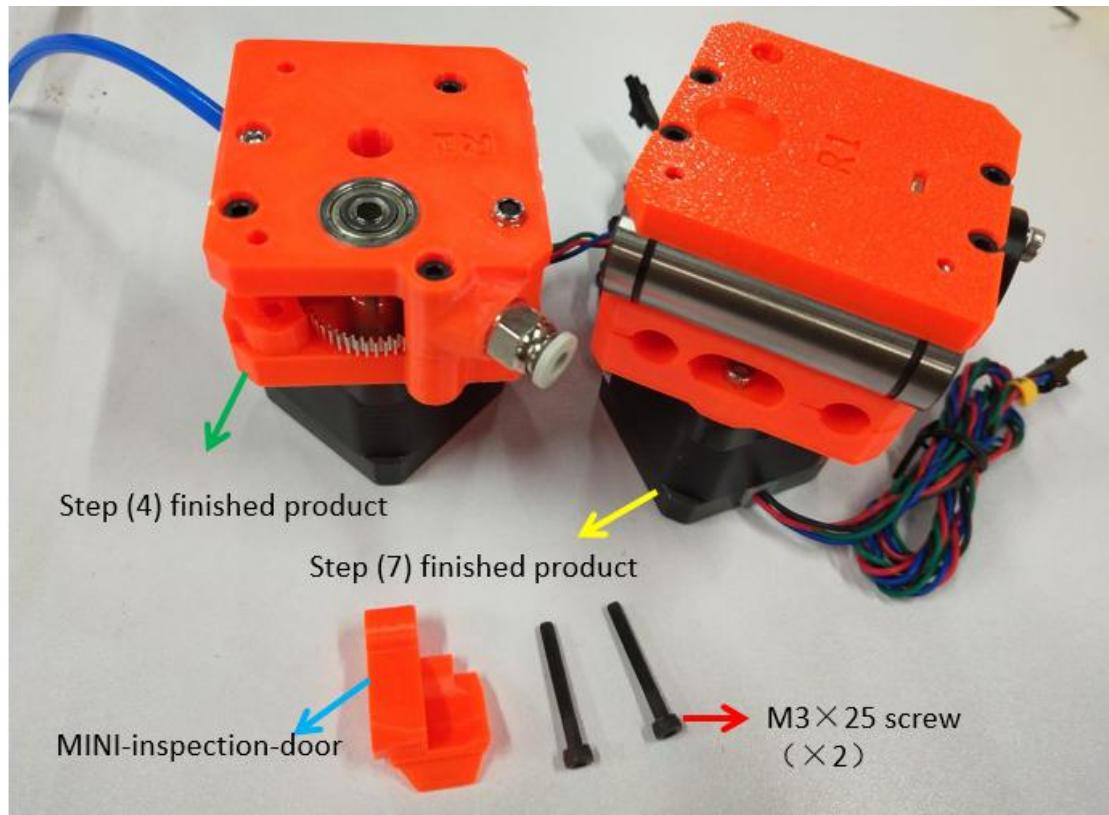


Figure 2.8.1

**Step 2-8-2:** as shown in Figure

A: As shown in Figure 2.8.2, assemble the X-axis drive module and Z-axis slider.

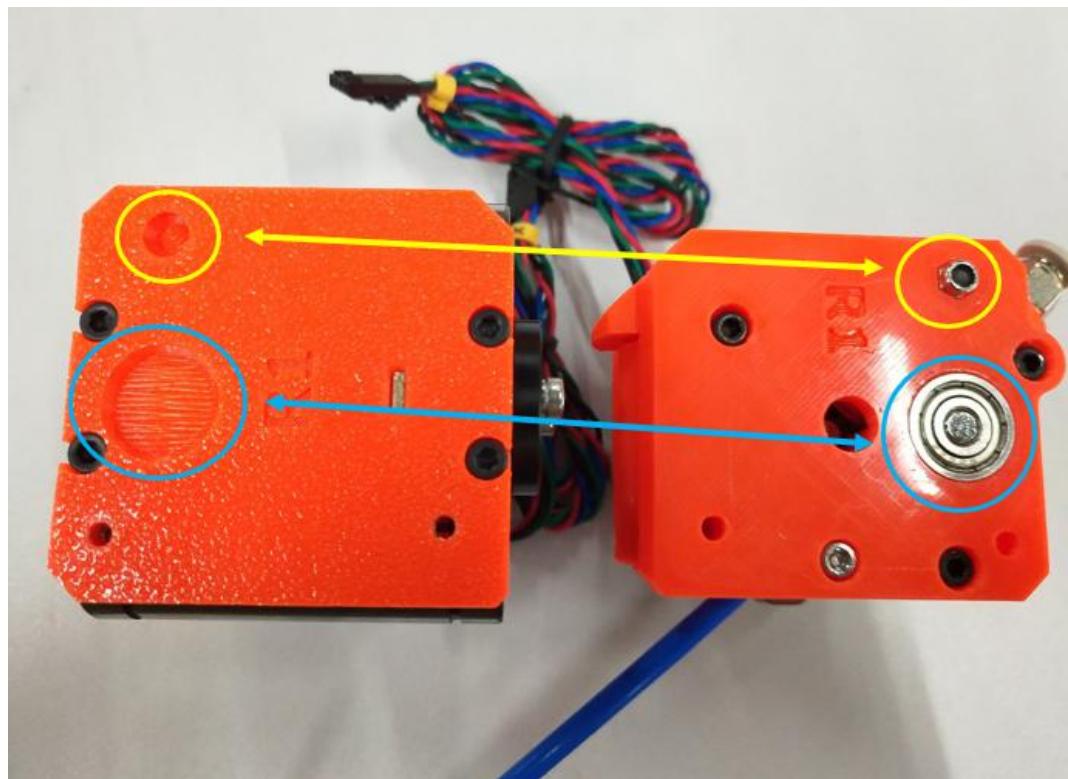


Figure 2.8.2

B: First connect the two modules with a M3 × 25 cylindrical head bolt, as shown in Figure 2.8.3.

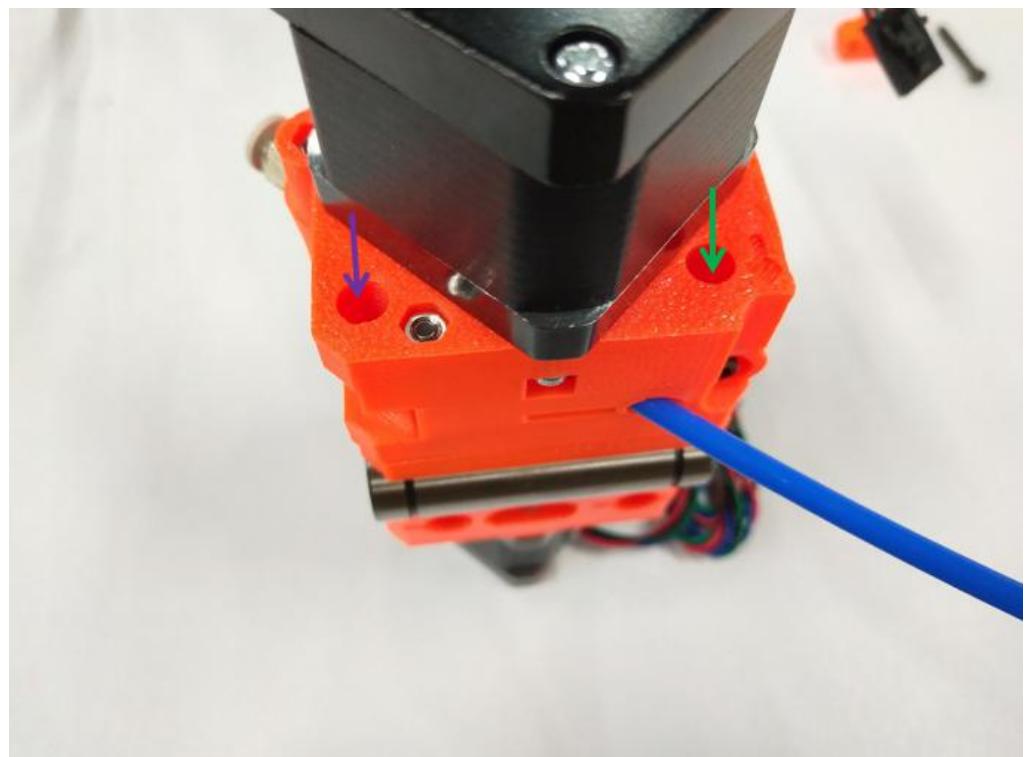


Figure 2.8.3

C: As shown in Figure 2.8.4, install MINI-inspection-door into the finished product assembled in the previous step, and lock it with another M3 × 25 cylindrical head bolt.

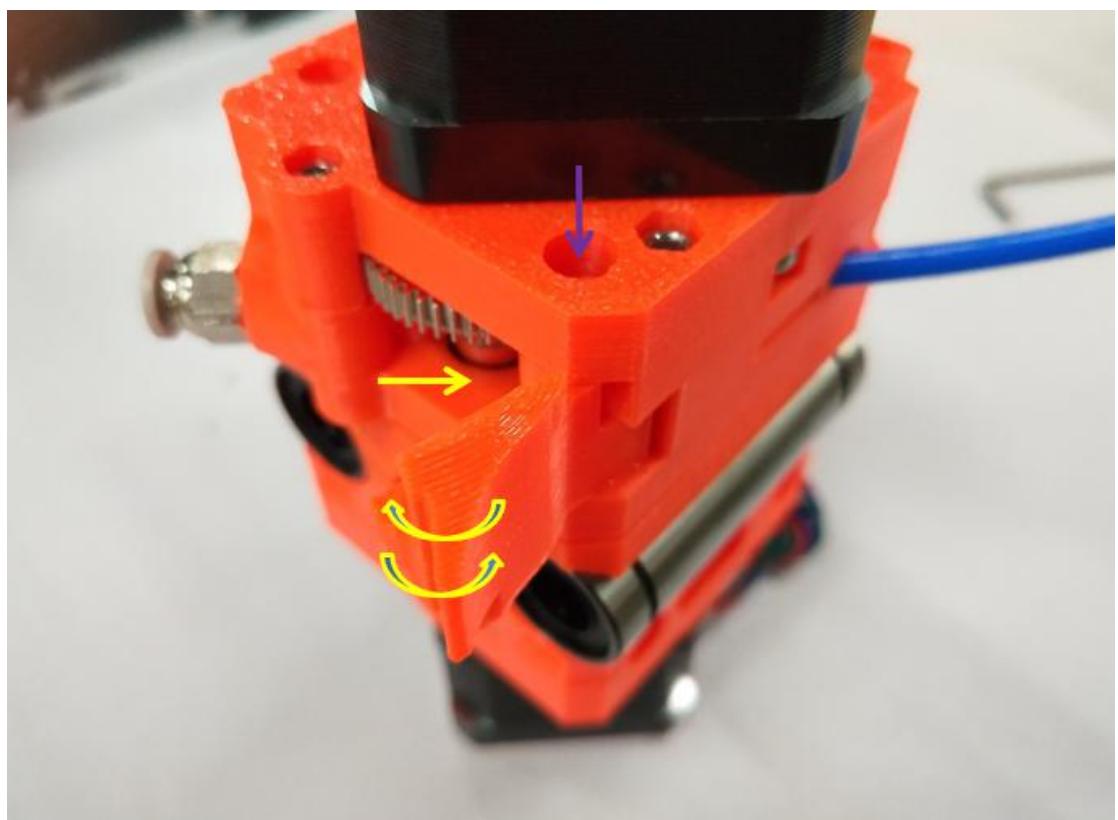


Figure 2.8.4

**Step 2-8-3:** After the assembly process is completed, check whether the installation direction is correct and whether the bolts are tightened.

## (9) Assembly of MINI-x-end

**Step 2-9-1:** As shown in Figure 2.9.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

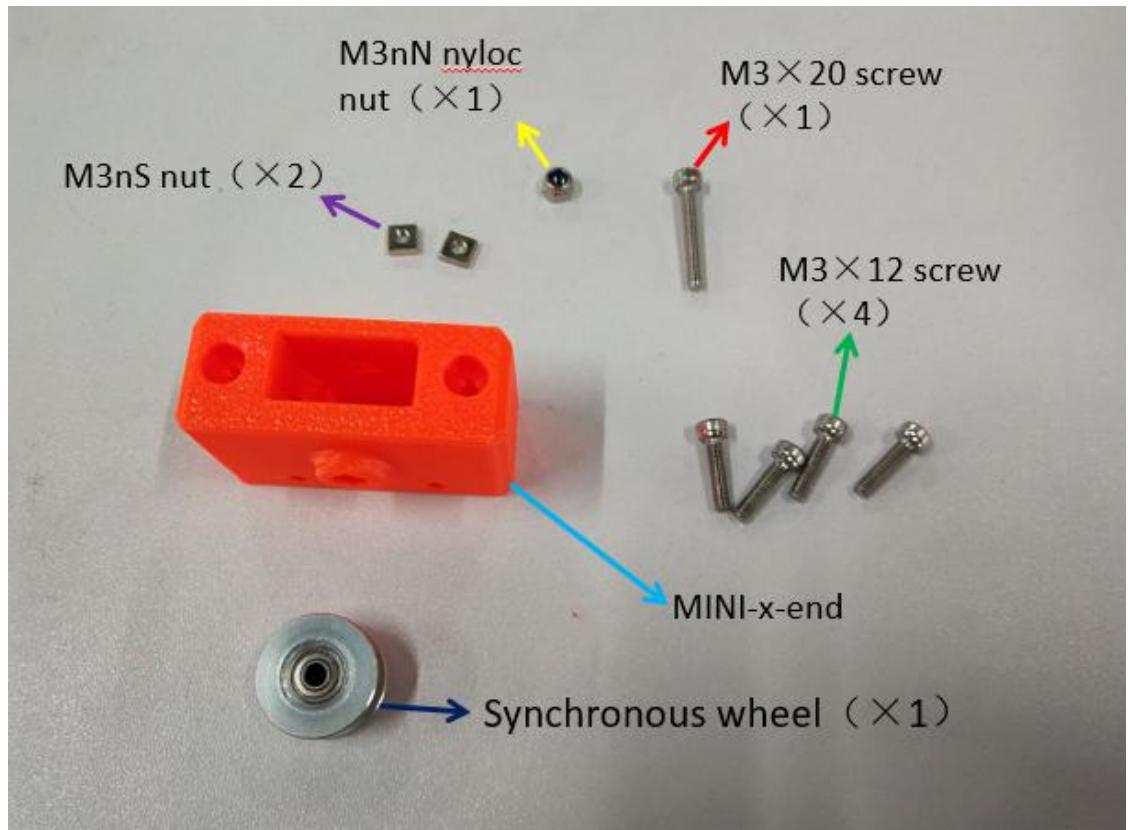


Figure 2.9.1

**Step 2-9-2:** as shown in Figure

A: Embed the 2pcs square nuts into the two square slots on the MINI-x-end until the threaded hole of the square nut is concentric with the through hole of the print, as shown in Figure 2.9.2.

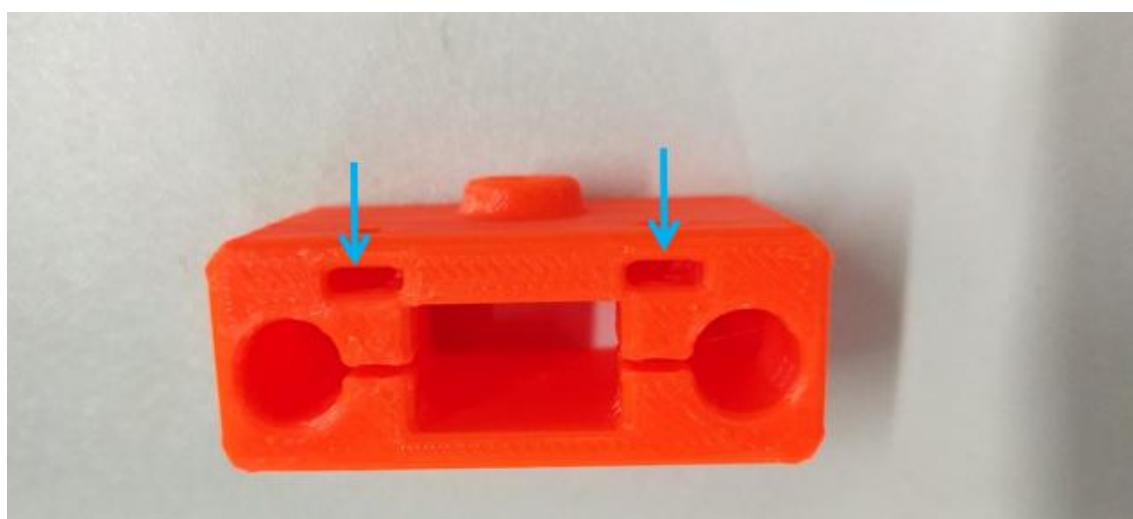


Figure 2.9.2

B: Insert an M3 lock nut into the hexagonal groove on the MINI-x-end, as shown in Figure 2.9.3.

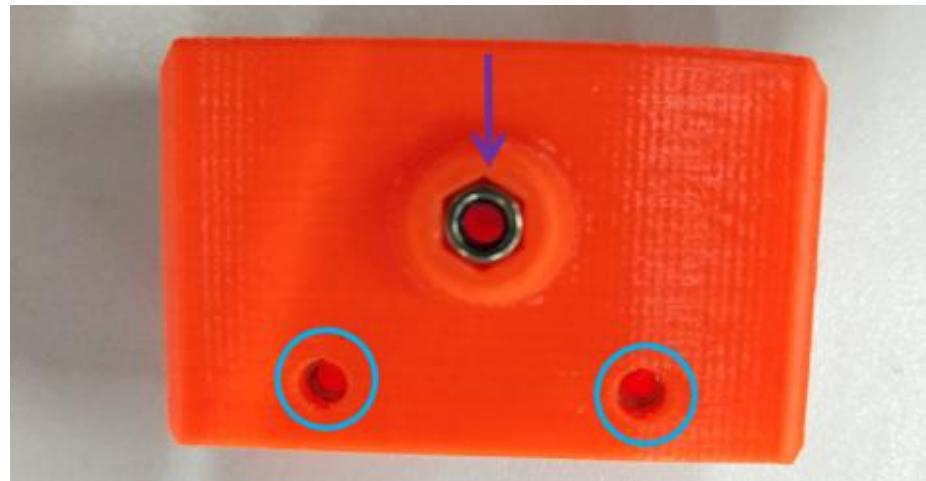


Figure 2.9.3

**Step 2-9-3:** as shown in Figure 2.9.4

A: Install the synchronization wheel on the MINI-x-end.

B: Use an M3 × 20 cylindrical head bolt to lock it.

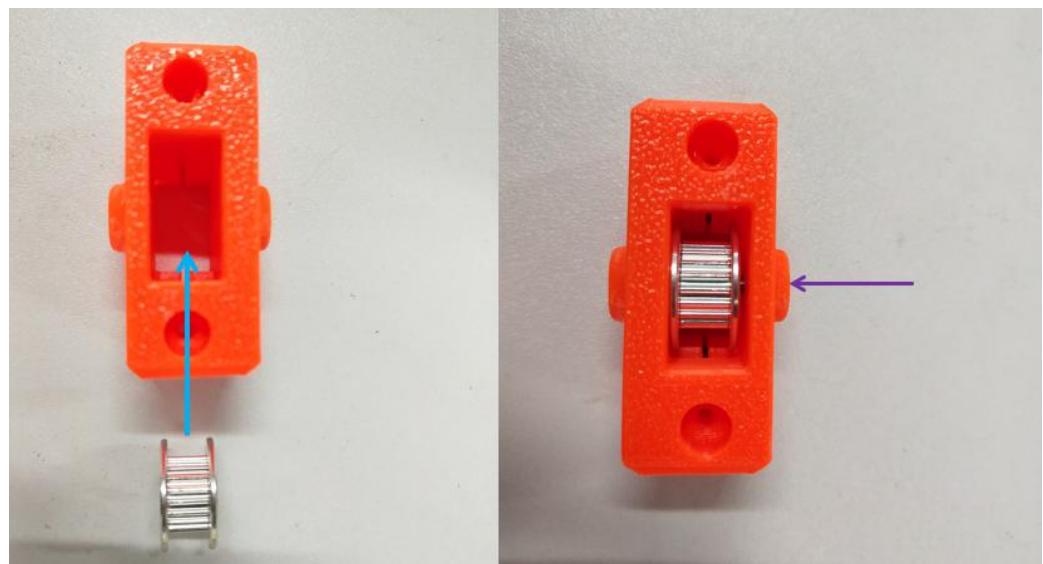


Figure 2.9.4

**Step 2-9-4:** As shown in Figure 2.9.5, pre-tighten the two M3 × 12 cylindrical head bolts into the two bolt holes of MINI-x-end.

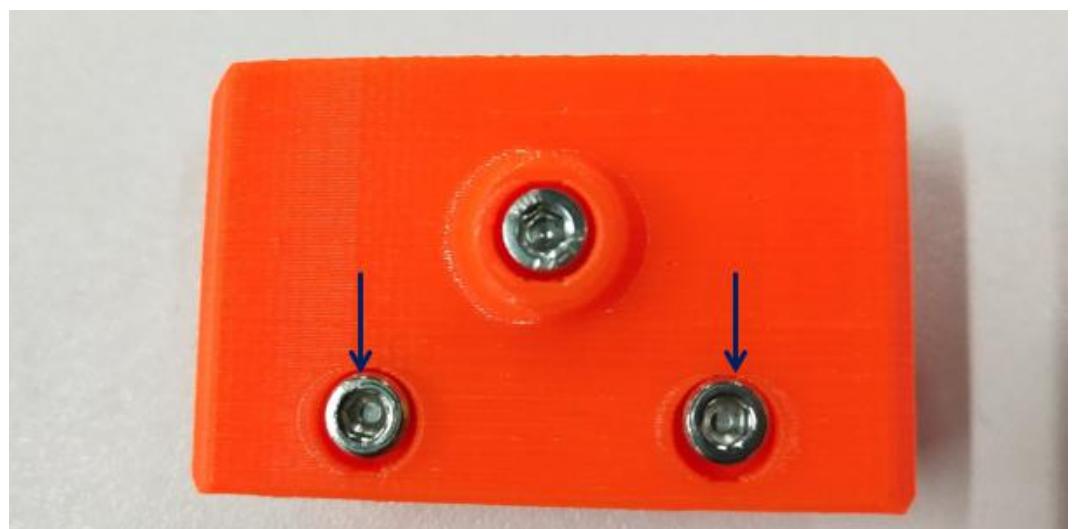


Figure 2.9.5

**Step 2-9-5:** As shown in Figure 2.9.6, lock the last 2pcs M3×12 cylindrical head bolts into the two bolt holes on the MINI-x-end shown in Figure until the end face of the bolt head is flush with the print.



Figure 2.9.6

**Step 2-9-6:** After completing the assembly process, check whether the installation direction is correct and whether the synchronization wheel can rotate smoothly.

## (10) Assembly of MINI-x-carriage

**Step 2-10-1:** As shown in Figure 2.10.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

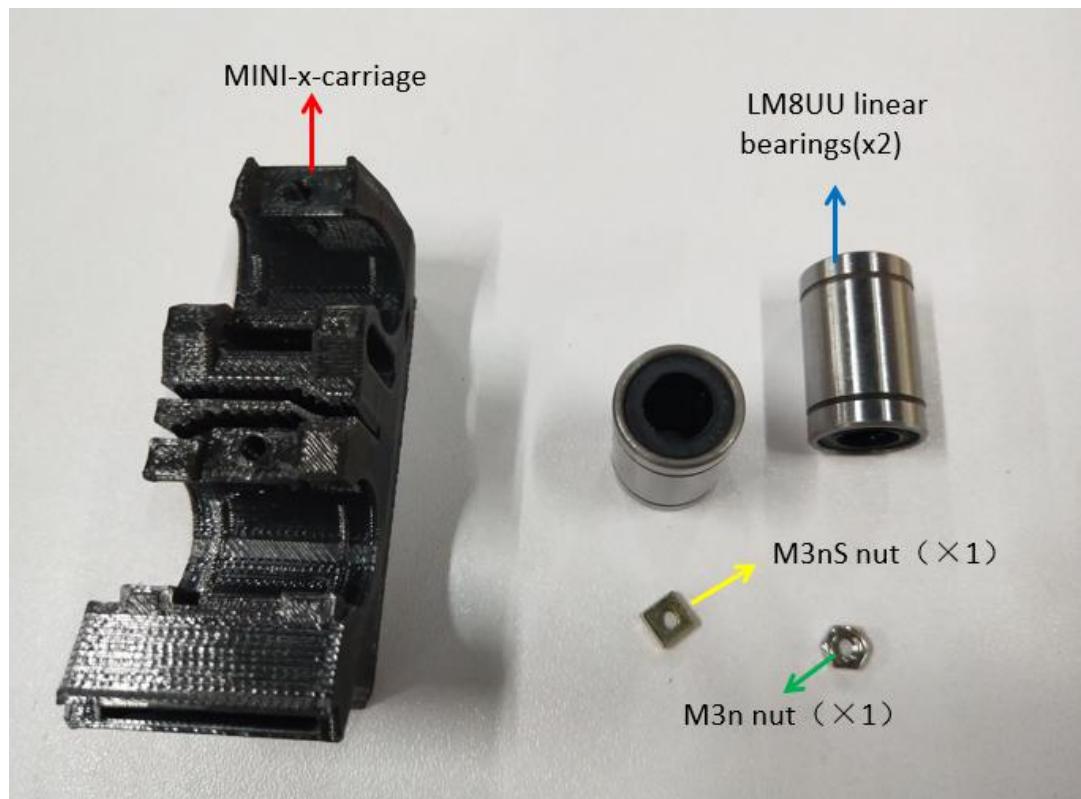


Figure 2.10.1

**Step 2-10-2:** As shown in Figure 2.10.2, insert an M3 square nut into the square groove on the MINI-x-carriage.



Figure 2.10.2

**Step 2-10-3: as shown in Figure**

**A: Embed an M3 hexagon nut into the hexagonal groove on MINI-x-carriage as shown in Figure 2.10.3.**

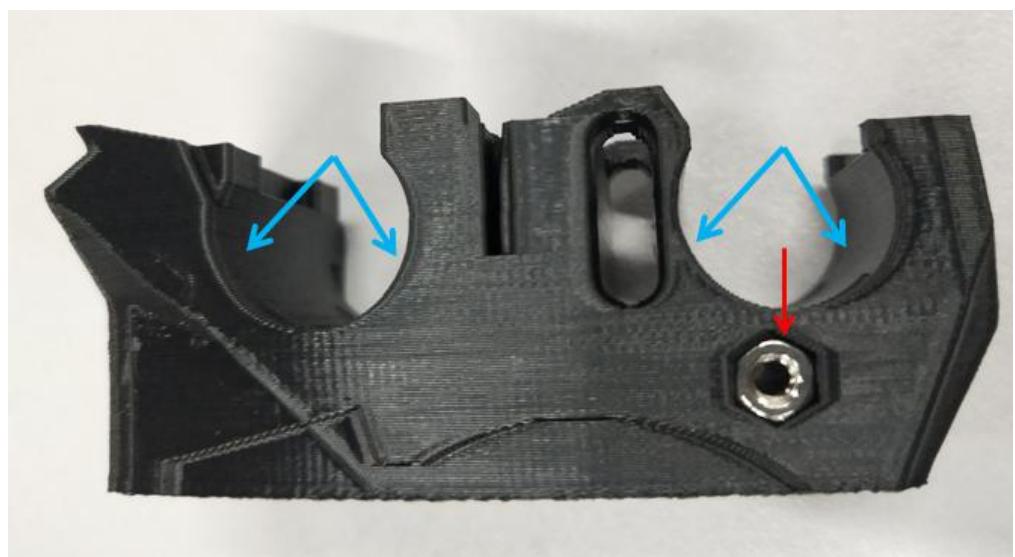


Figure 2.10.3

**B: Install the two linear bearings into the two U-shaped notches on the MINI-x-carriage. It is required that the end face of the linear bearing and the end face of the print are flush, as shown in Figure 2.10.4.**

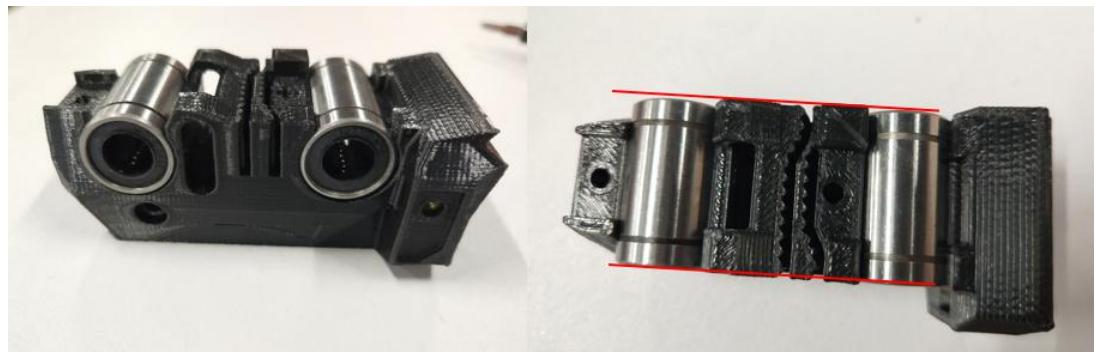


Figure 2.10.4

**Step 2-10-4:** After the assembly of the process, check whether the installation direction is correct.

## (11) Installation of X-axis slider & smooth rod

**Step 2-11-1:** As shown in Figure 2.11.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

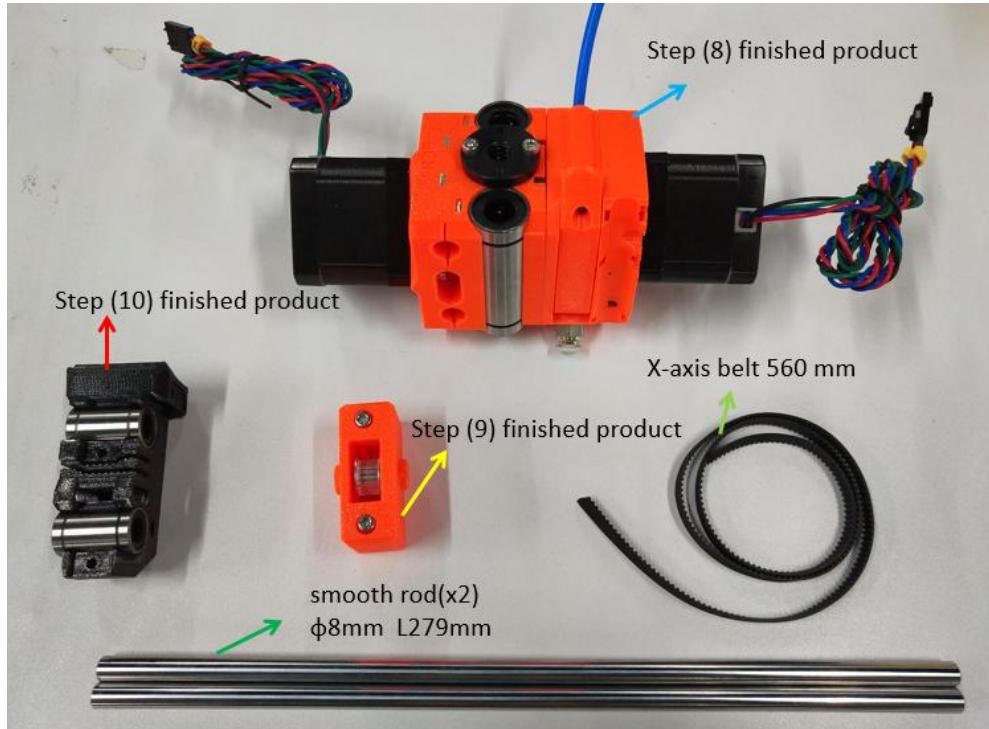


Figure 2.11.1

**Step 2-11-2:** As shown in Figure 2.11.2, knock the two smooth rods into the two through holes in the MINI-z-carriage-front ,shown in Figure ,until the end face of the smooth rod is flushed with the end face of the print.

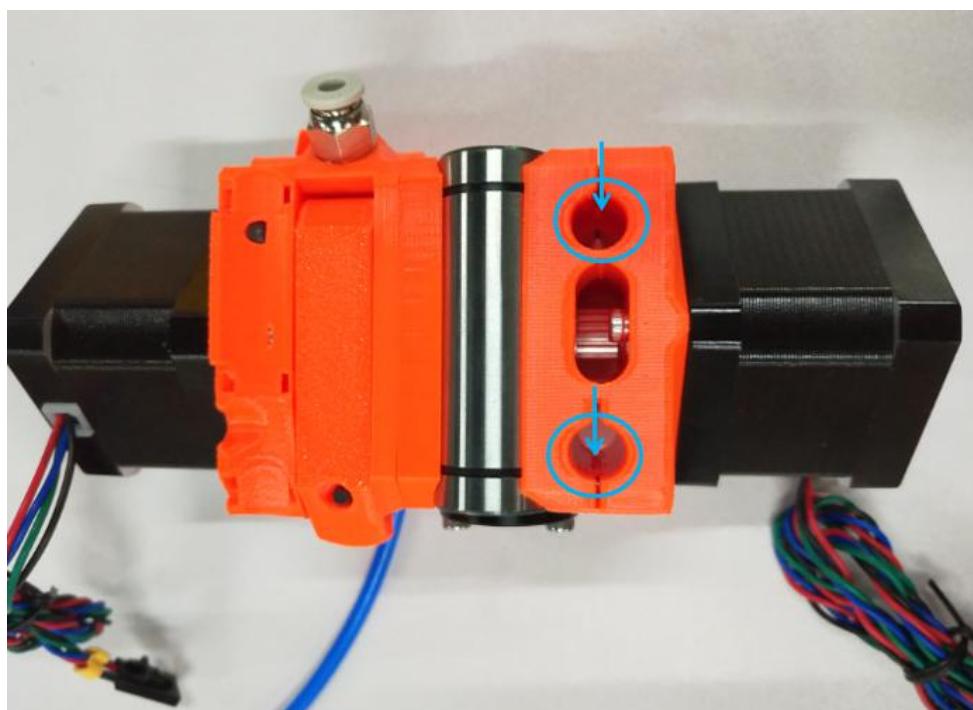


Figure 2.11.2

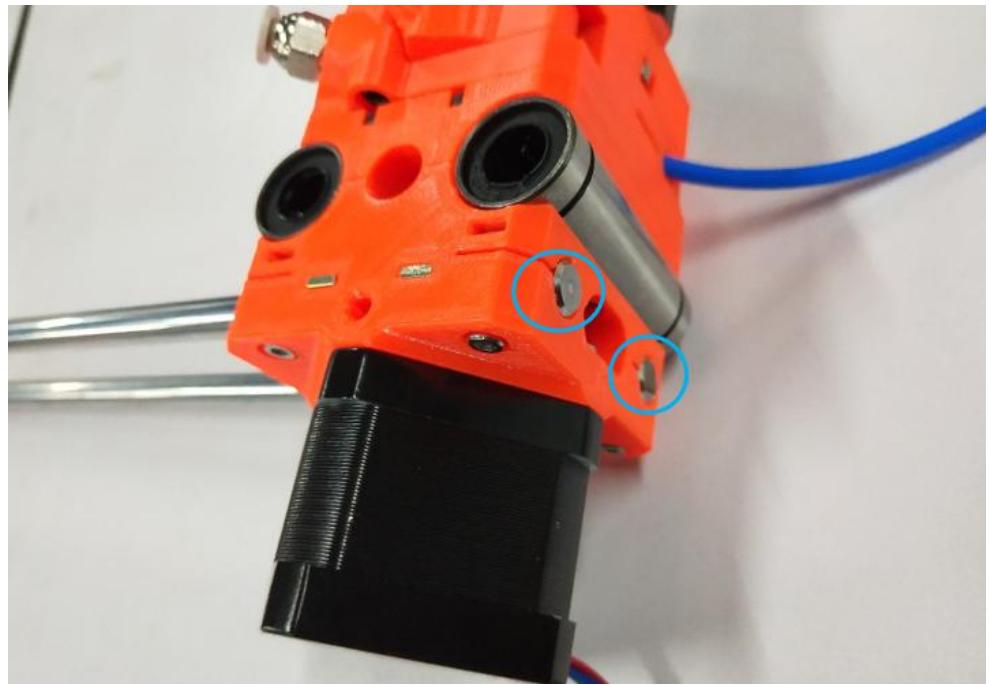


Figure 2.11.3

**Step 2-11-3:** As shown in Figure 2.11.4, after knocking the two smooth rods into the print, **tighten the 4pcs M3 X 12 cylindrical head bolts pre-tightened in step 2-5-3.** (Be careful not to lock it very tightly, otherwise it will easily cause cracks in the print)

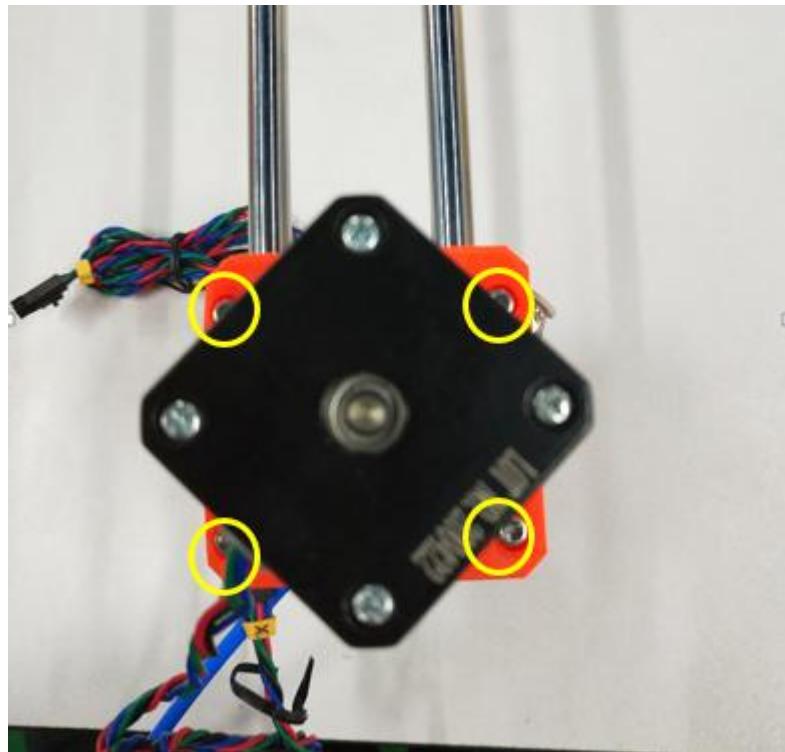


Figure 2.11.4

**Step 2-11-4:** As shown in Figure 2.11.5, gently put the linear bearing on the MINI-x-carriage into the smooth rod, (note that the linear bearing and the smooth rod must be kept coaxially assembled, otherwise it is easy to make the straight line The balls in the bearing fall out) ,Pay attention to the direction of MINI-x-carriage installation.

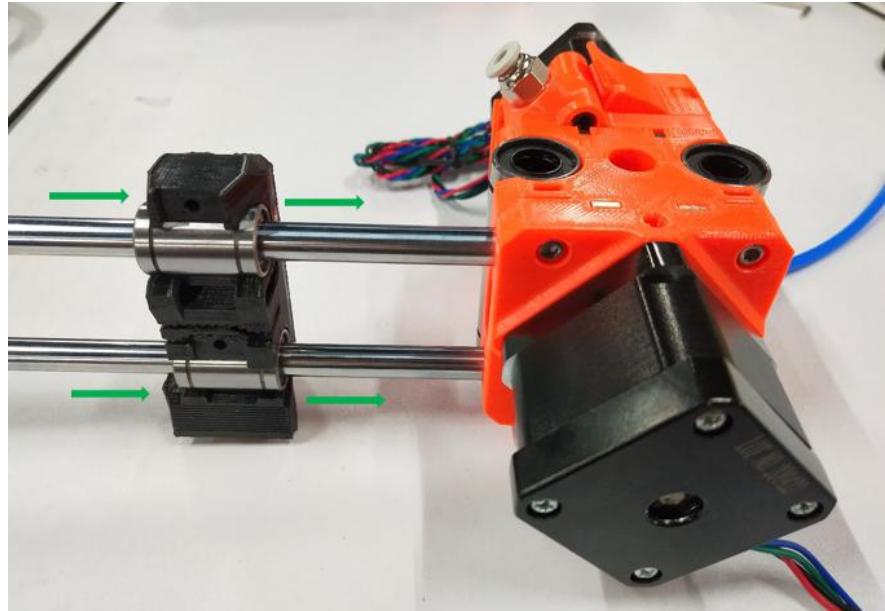


Figure 2.11.5

**Step 2-11-5:** As shown in Figure 2.11.6, tap the MINI-x-end into the end of the smooth rod to the bottom.

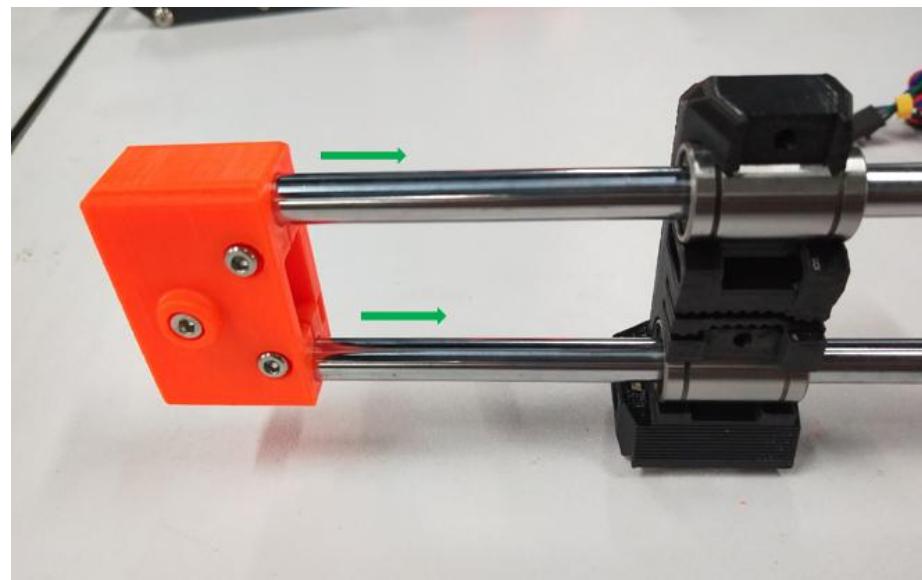


Figure 2.11.6

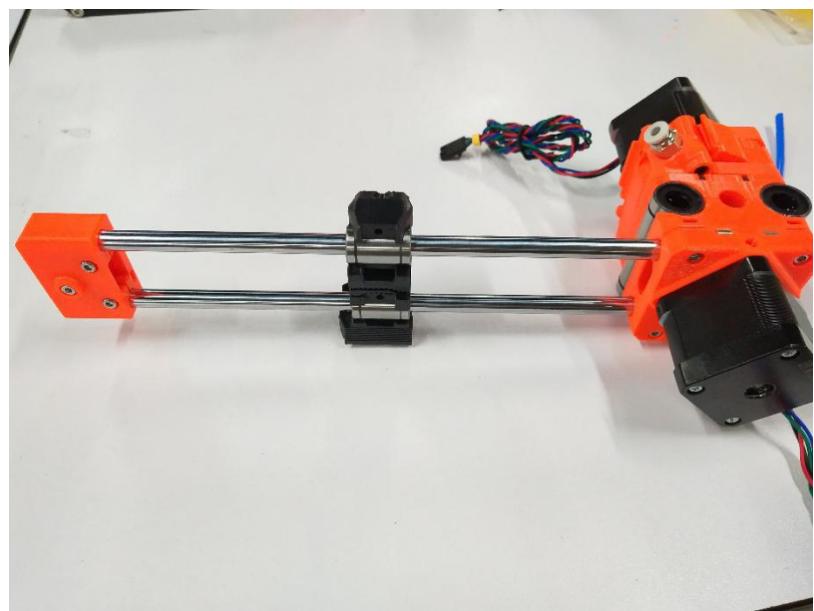


Figure 2.11.7

**Step 2-11-6:** As shown in Figure 2.11.8, install one end of the belt into the belt installation slot on the MINI-x-carriage as shown in Figure. (Note that the teeth of the belt are facing up)

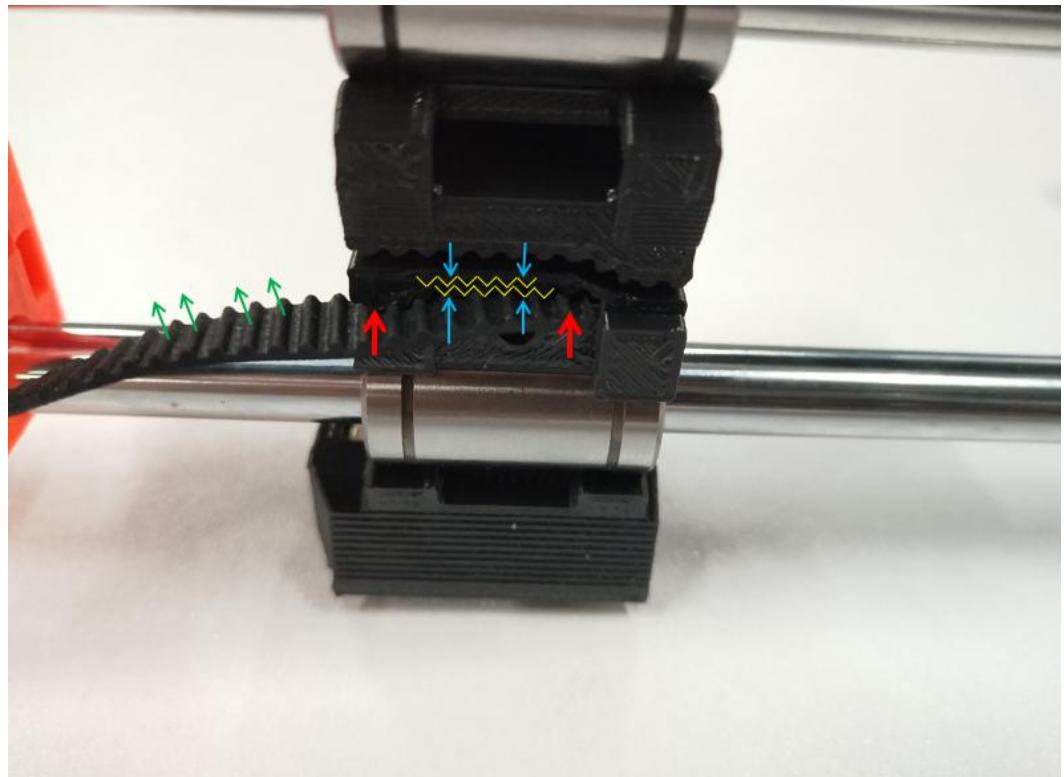


Figure 2.11.8

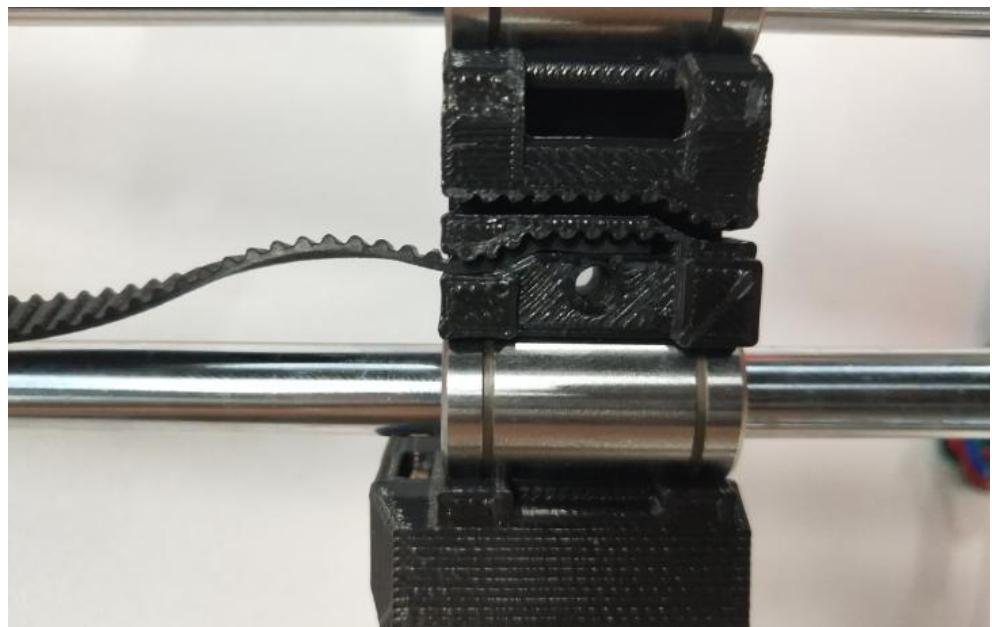


Figure 2.11.9

**Step 2-11-7:** As shown in Figure 2.11.10, pass the other end of the belt around the synchronization wheel in MINI-x-end, and then pass through the through hole of MINI-x-carriage in Figure 2.11.11.

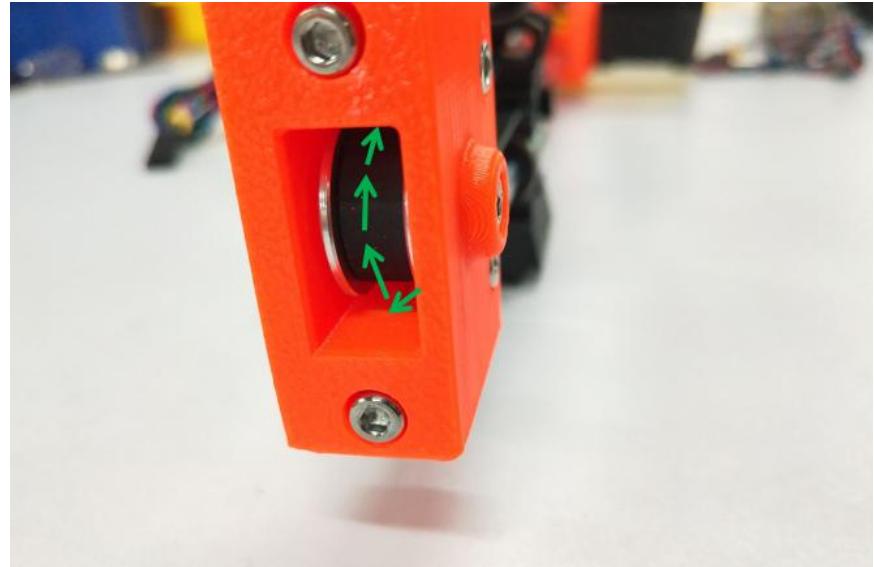


Figure 2.11.10

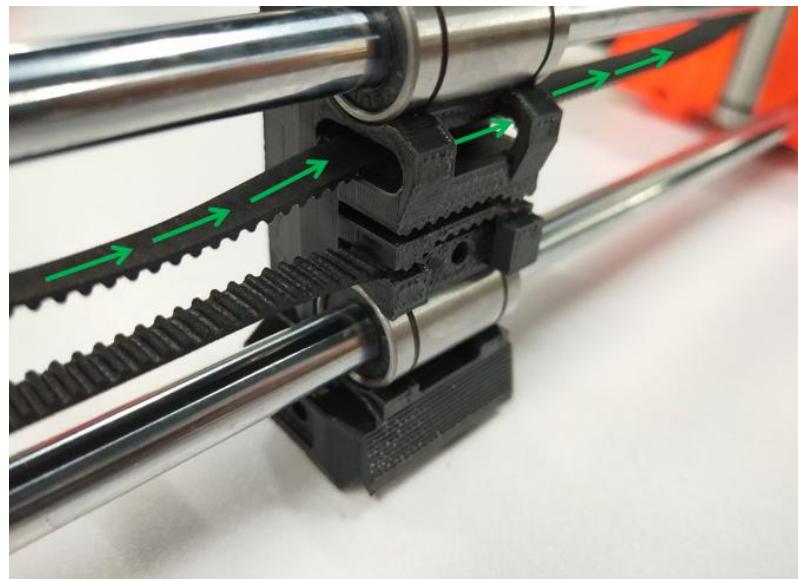


Figure 2.11.11

**Step 2-11-8:** As shown in Figure 2.11.12, continue to pass the belt through the synchronous wheel on the X-axis motor.

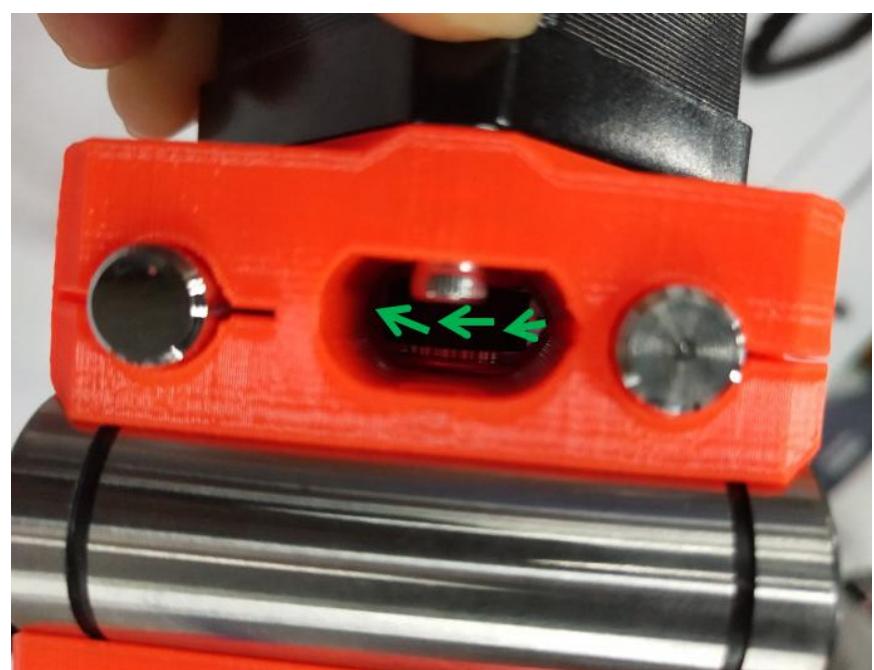


Figure 2.11.12

**Steps 2-11-9:** As shown in Figure 2.11.13, finally install the belt into the other belt installation slot of MINI-x-carriage, requiring the direction of the tooth to be upward.

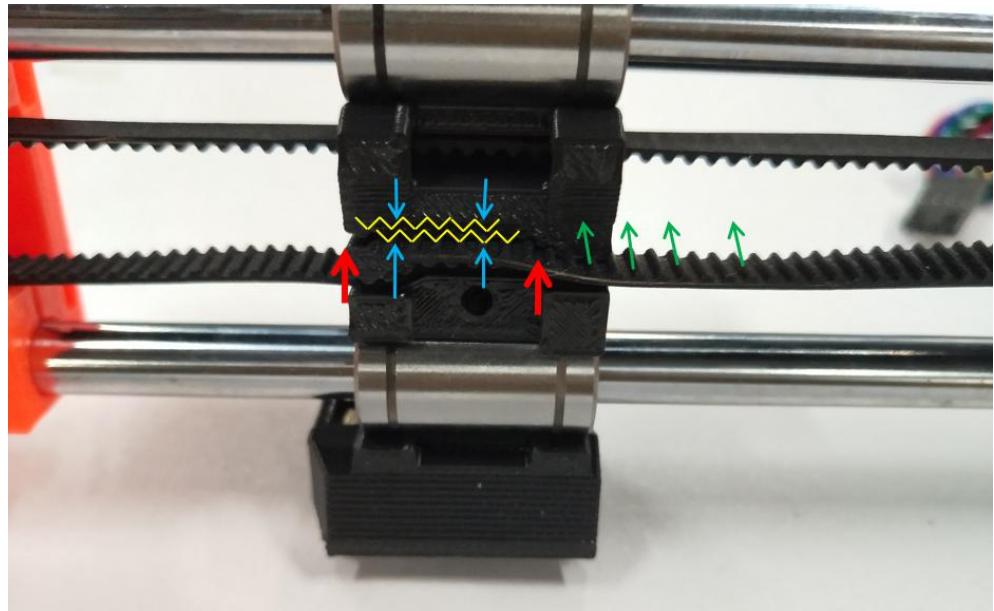


Figure 2.11.13

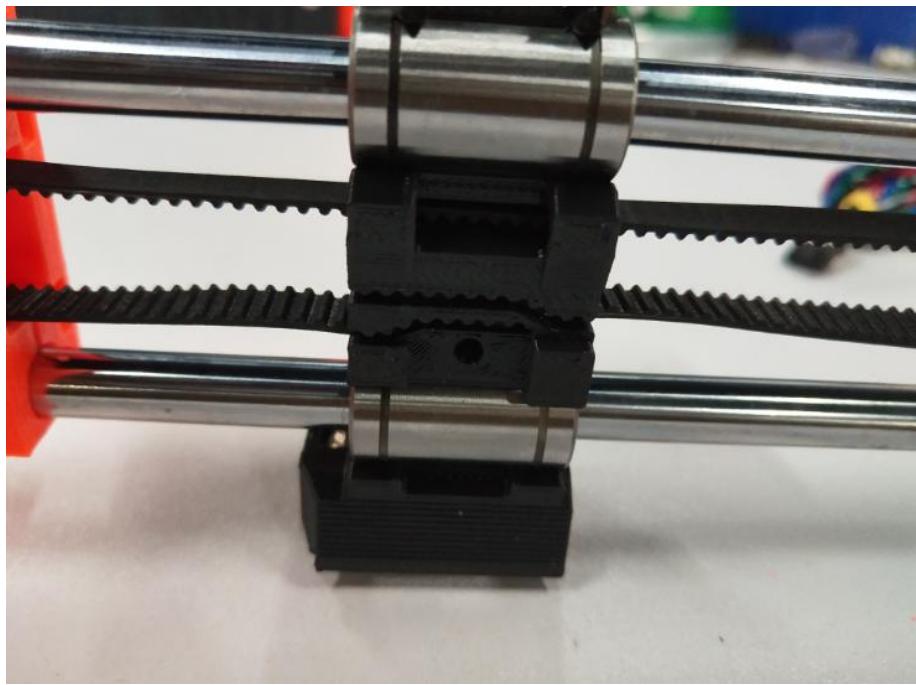


Figure 2.11.14

**Step 2-11-10:** as shown in Figure 2.11.15

A: Loosen the two M3 × 12 bolts shown in Figure.

B: After step A is completed, tighten the two bolts shown in Figure until the belt is tight.

C: Re-tighten the two M3 × 12 screws.

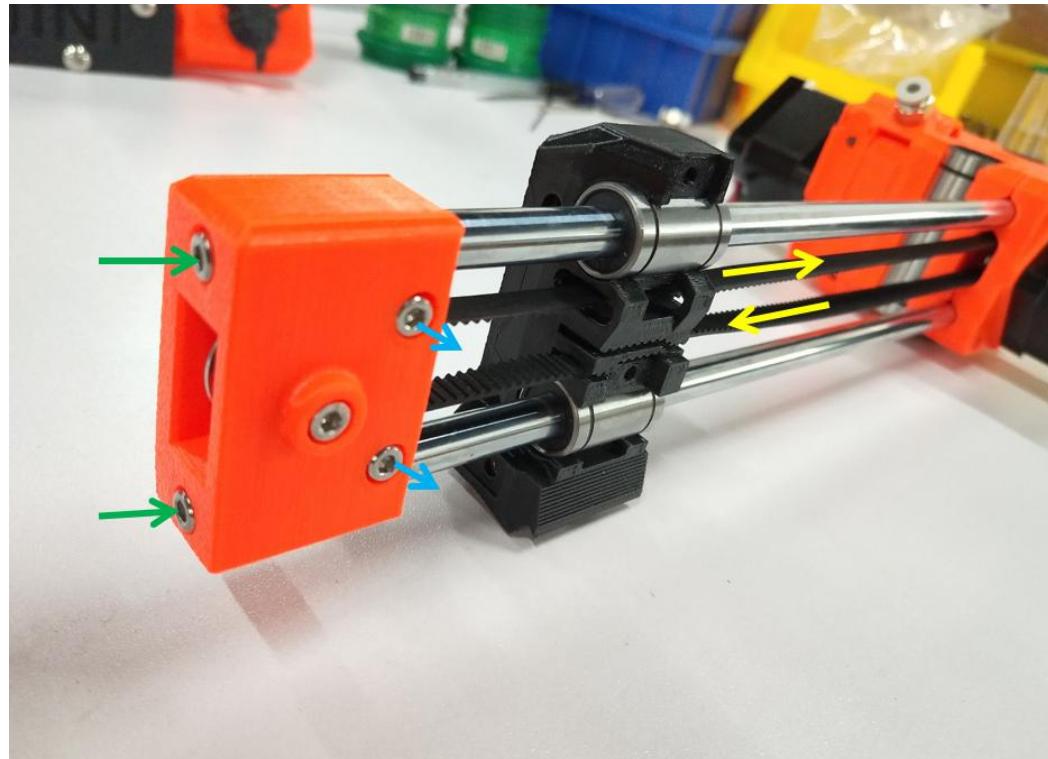


Figure 2.11.15

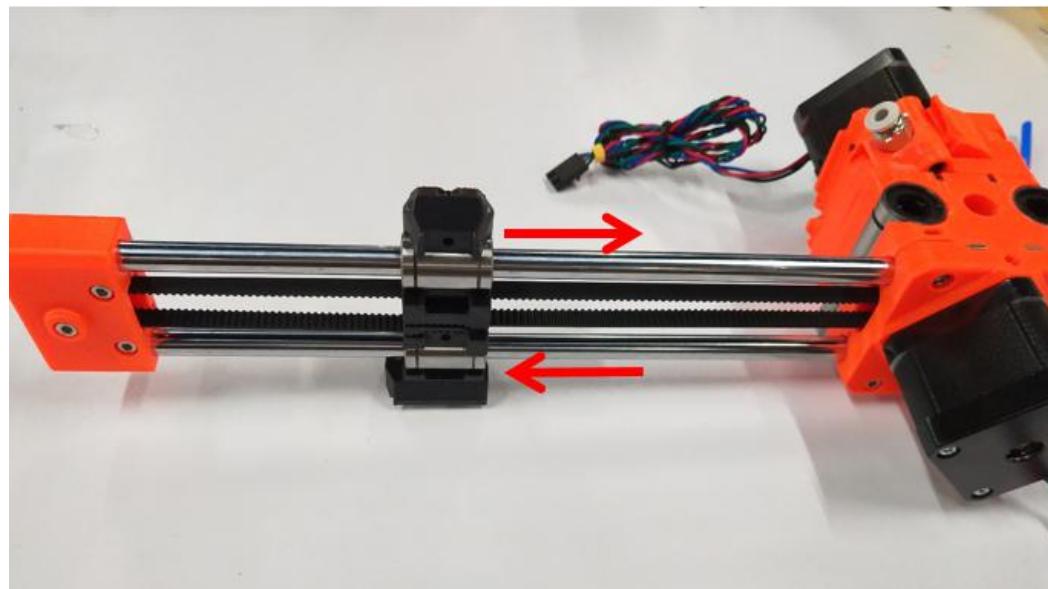


Figure 2.11.16

**Steps 2-11-11:** After completing the assembly process, check whether the installation direction is correct, the belt is tight, and the slider can smoothly slide on the smooth rod.

## (12) Installation of extruder Hotend

**Step 2-12-1:** As shown in Figure 2.12.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

project name	specification	quantity	unit	reference
Extruder radiator		1	pcs	A
Fast connection-peg	PC4-M6	1	pcs	B
Feed tube		1	pcs	C
nozzle		1	pcs	D
heat block		1	pcs	E
Silica gel set		1	pcs	F
heating rod			1 sec	G
temperature sensor			1 pcs	H
MINI-fan-spacer		1	pcs	I
MINI-minda-holder		1	pcs	J
cooling fan	4010 5V	1	pcs	K
sensor	Φ8 4-35V	1	pcs	L
Fastening screw	M3×4	3	pcs	M
screws	M3×12	1	pcs	N
screws	M3×20	2	pcs	O
M3n nut			1 pcs	P

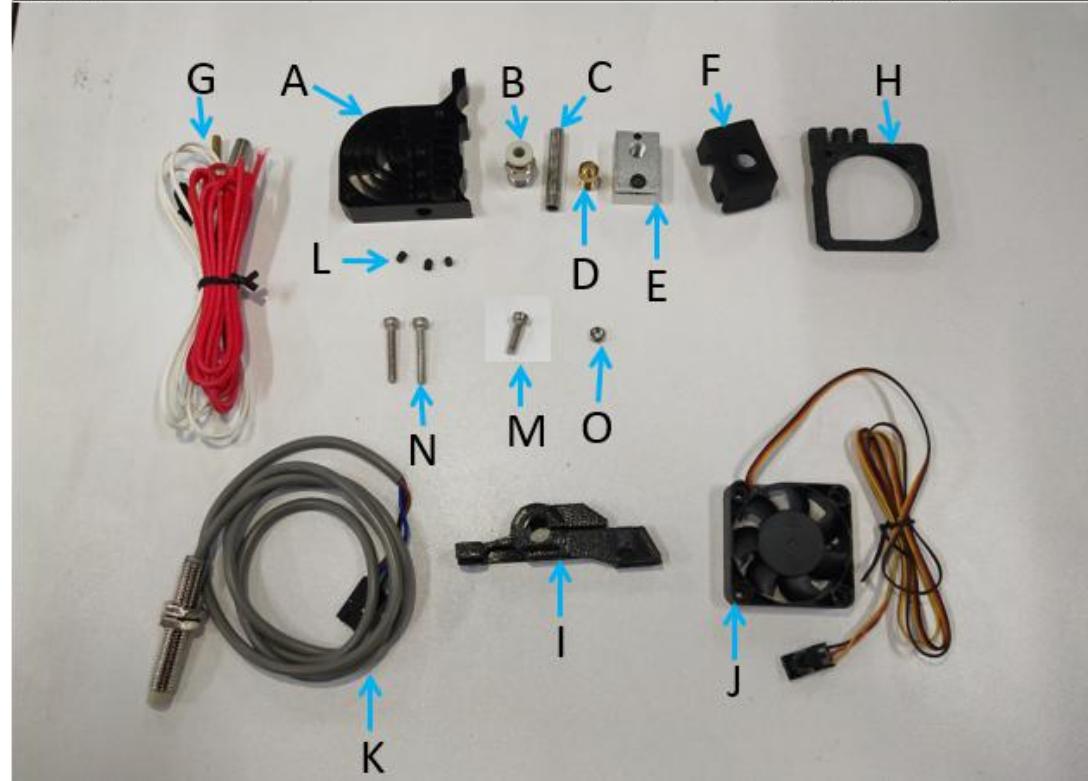


Figure 2.12.1

**Step 2-12-2:** as shown in Figure 2.12.2

A: Install the hose into the fan heater of the extruder with the threaded end facing outward.

B: Lock 3PCS M3×4 fastening screws into the fan heater to fix the throat.

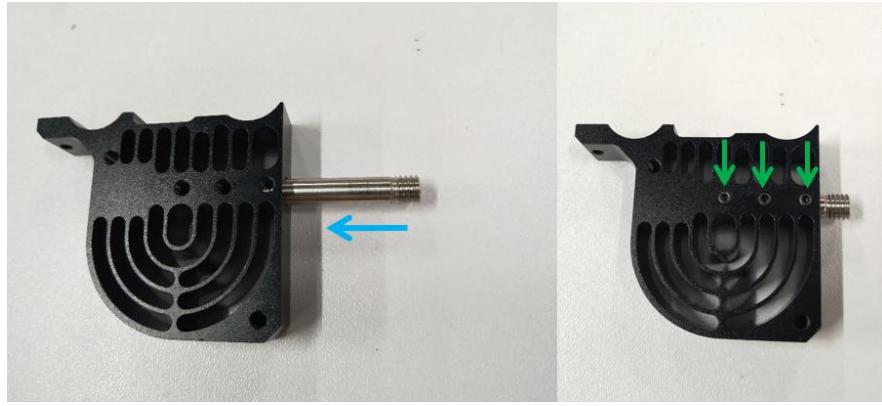


Figure 2.12.2

**Step 2-12-3:** as shown in Figure 2.12.3

- A: Lock the heating block into the throat, **pay attention to the installation direction of the heating block and fan heater.**
- B: Lock the nozzle in the heating block, **pay attention to keep the nozzle end surface at a distance of 1mm from the plane of the heating block.**
- C: **The nozzle, heating block and throat must be tightened to each other**, this is the most important, otherwise it will easily lead to leakage.

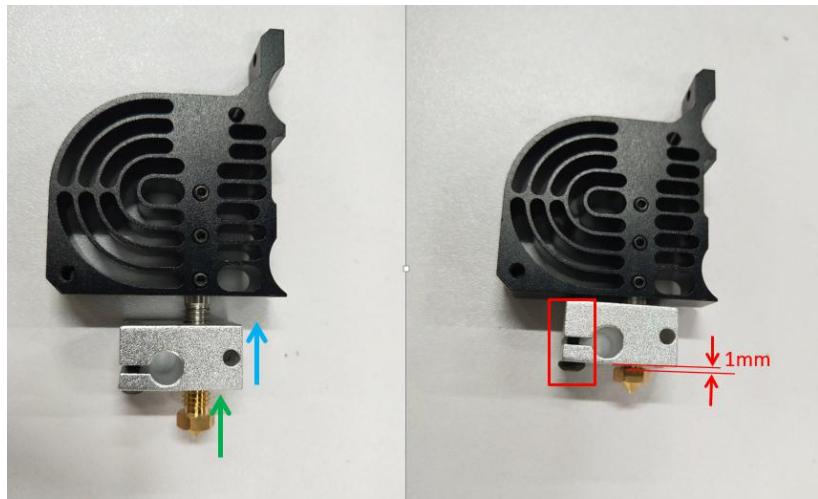


Figure 2.12.3

**Step 2-12-4:** as shown in Figure 2.12.4

- A: Install the temperature sensor and the heating rod into the heating block separately. The end of the temperature sensor and the heating rod should be flush with the end face of the heating block.
- B: After installing the temperature sensor and heating rod, tighten the two fastening screws on the heating block to fix it.
- C: Finally put on the silicone sleeve.

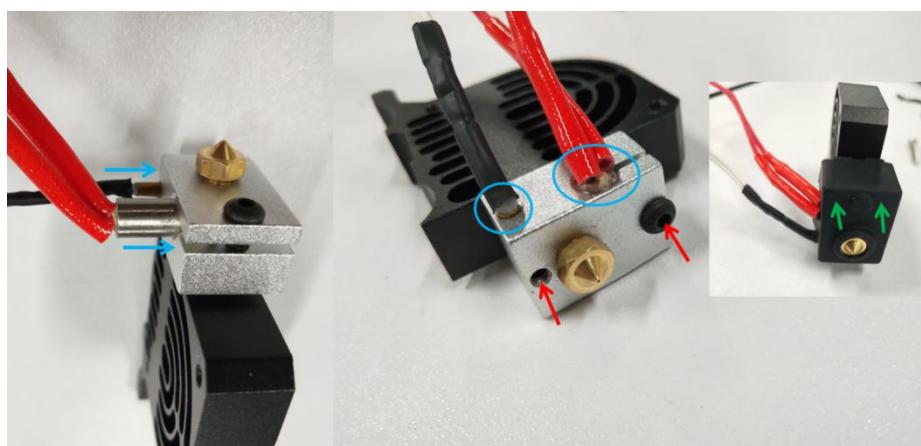


Figure 2.12.4

**Step 2-12-5:** As shown in Figure 2.12.5, screw the fast connector-peg into the radiator of the extruder to the bottom of the thread.

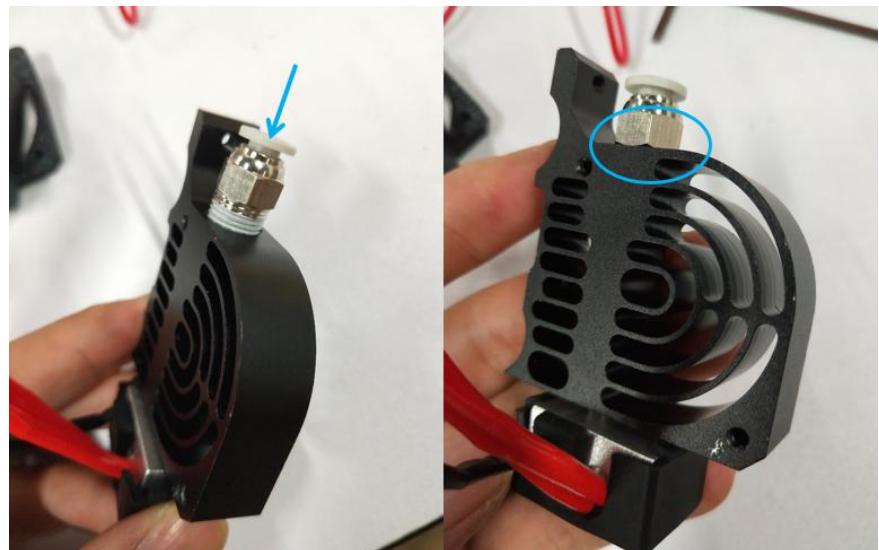


Figure 2.12.5

**Step 2-12-6:** as shown in Figure

A: As shown in 2.12.6, insert an M3 hex nut into the hex groove on the MINI-minda-holder.



Figure 2.12.6

B: As shown in 2.12.7, slightly extend the mounting hole of the print to both sides, and then install the distance sensor switch to the MINI-minda-holder. The end surface of the sensor switch is required to be 8.7mm away from the plane of the print.

C: Lock an M3×12 cylindrical head bolt to lock the sensor switch.

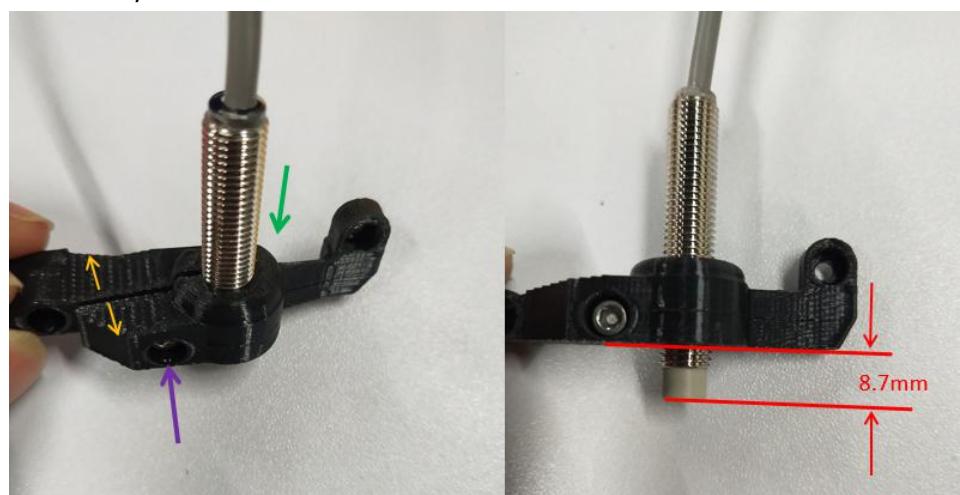


Figure 2.12.7

**Step 2-12-7:** as shown in Figure

A: As shown in Figure 2.12.8, install the MINI-fan-spacer on the fan heater of the extruder, pay attention to the installation direction of the print.

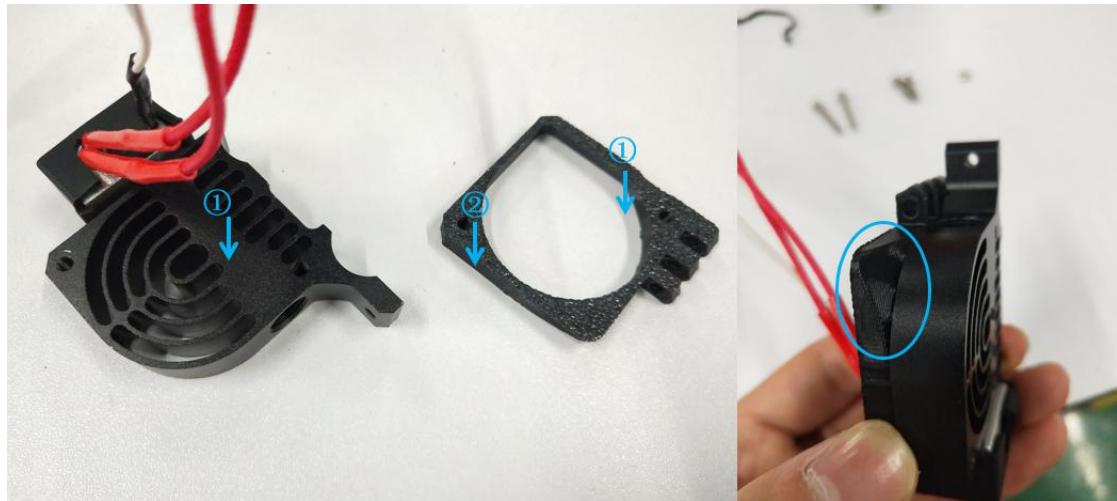


Figure 2.12.8

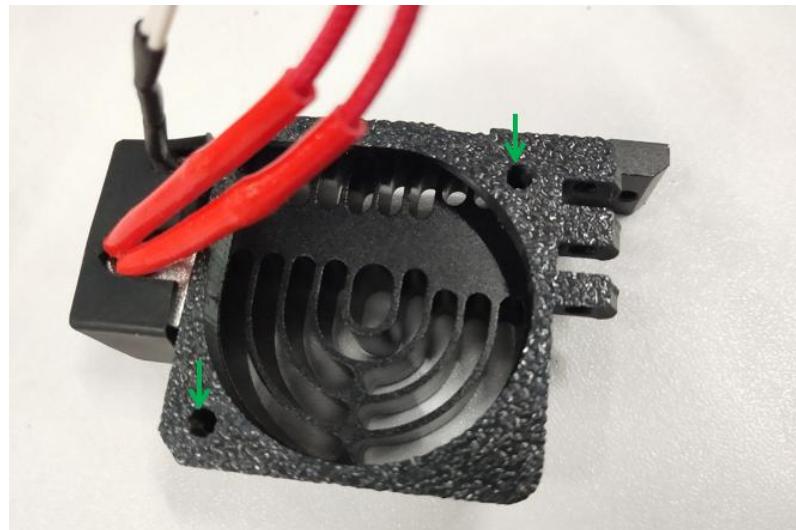


Figure 2.12.9

B: As shown in Figure 2.12.10, install the cooling fan on the MINI-fan-spacer (note the cable direction of the fan), then install the MINI-minda-holder on the cooling fan, and use one M3×20 cylinders Head bolt to lock it .

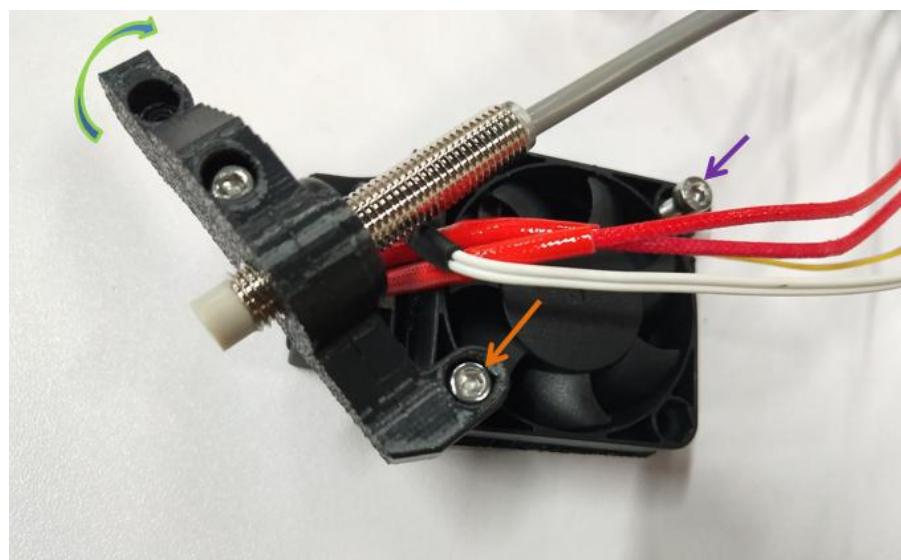


Figure 2.12.10

C: As shown in Figure 2.12.11, arrange the cables of the cooling fan, temperature sensor and heating rod, rotate the MINI-minda-holder upwards and jump to level, and lock another M3×20 cylindrical head bolt.

D: For more reference, see Figure 2.12.12.

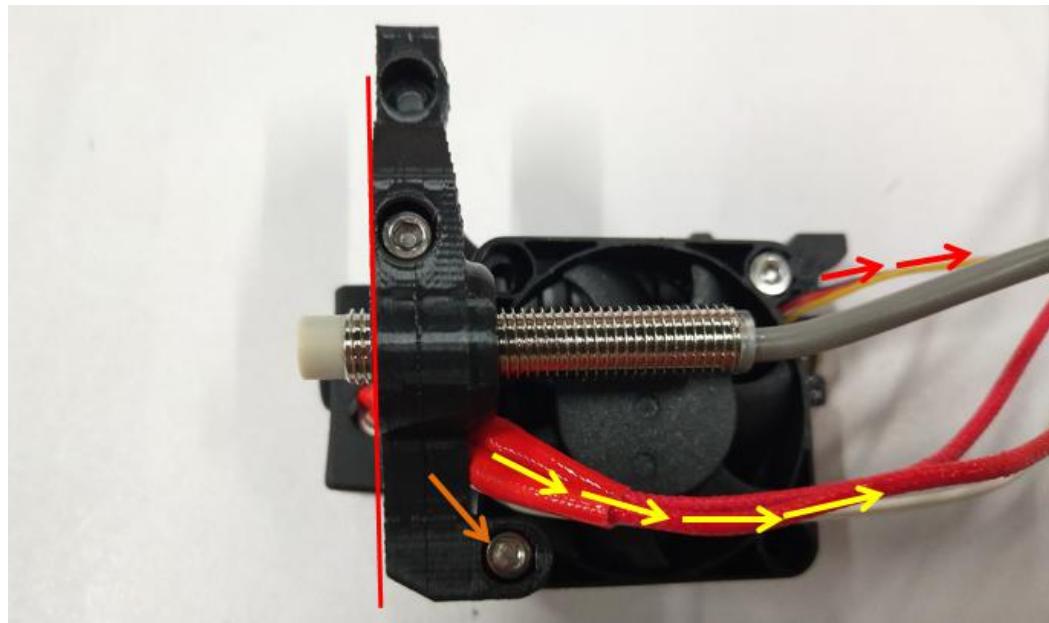


Figure 2.12.11

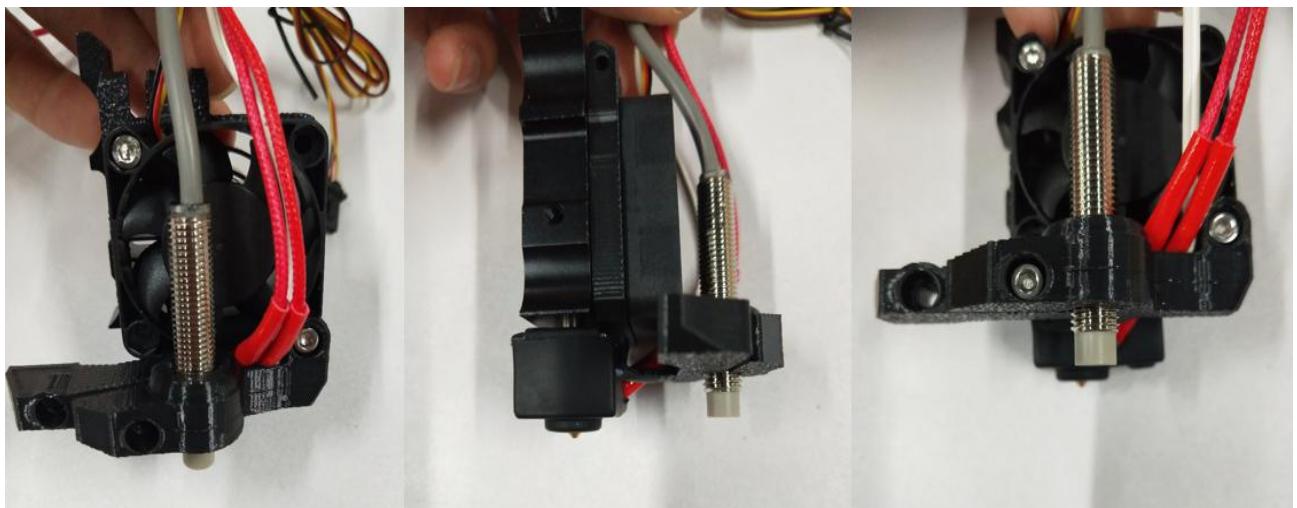


Figure 2.12.12

**Step 2-12-8:** After completing the assembly process, check whether the installation direction is correct, and whether the nozzle and bolts are tightened.

## (13) Extruder installation

**Step 2-13-1:** As shown in Figure 2.13.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

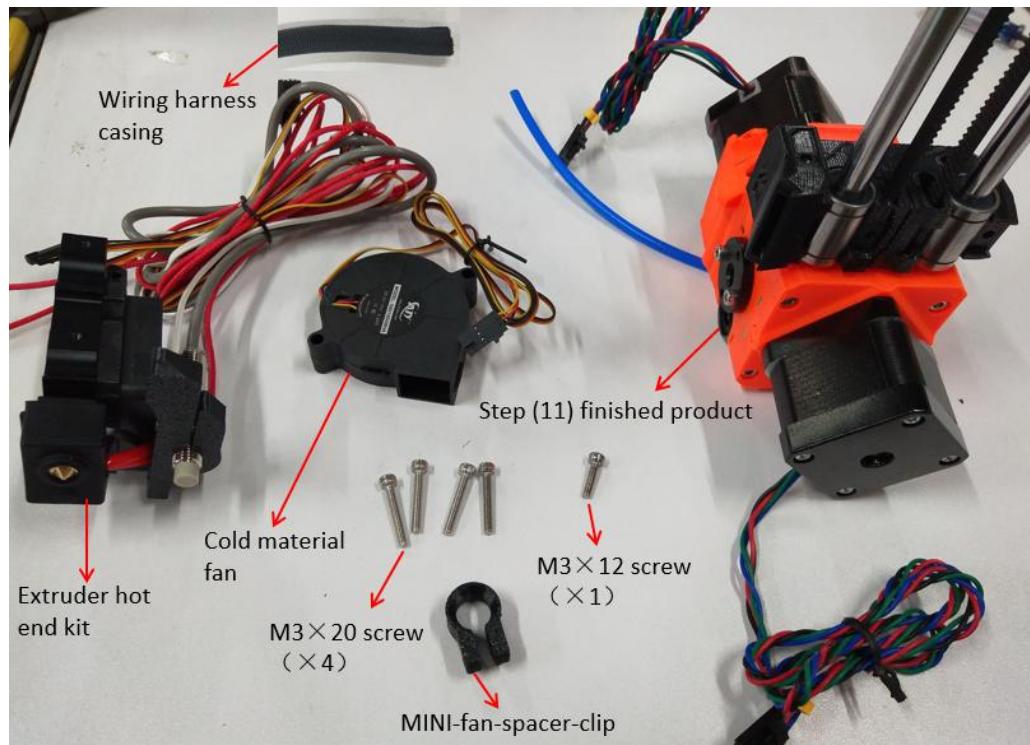


Figure 2.13.1

**Step 2-13-2:** As shown in Figure

A: As shown in Figure 2.13.2, install the hot end of the extruder into the MINI-x-carriage on the X-axis slider, and wrap the linear bearing with a radiator and MINI-x-carriage.

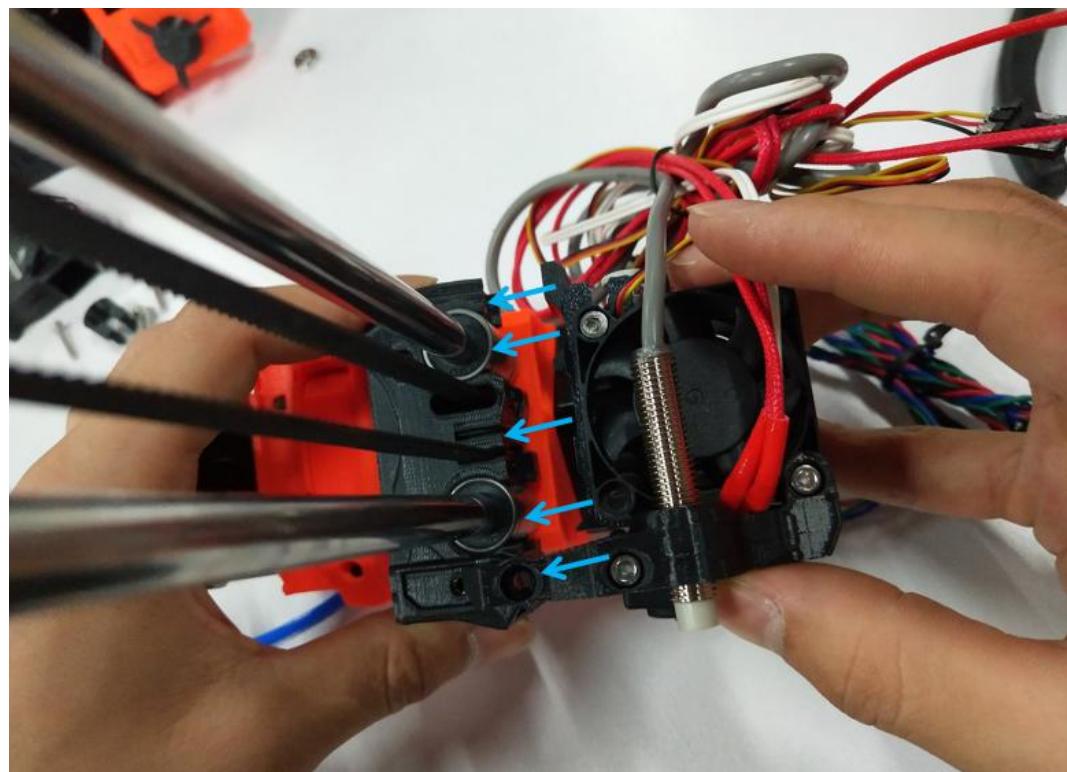


Figure 2.13.2

B: As shown in Figure 2.13.3, put the two parts close together and prepare for the next installation.

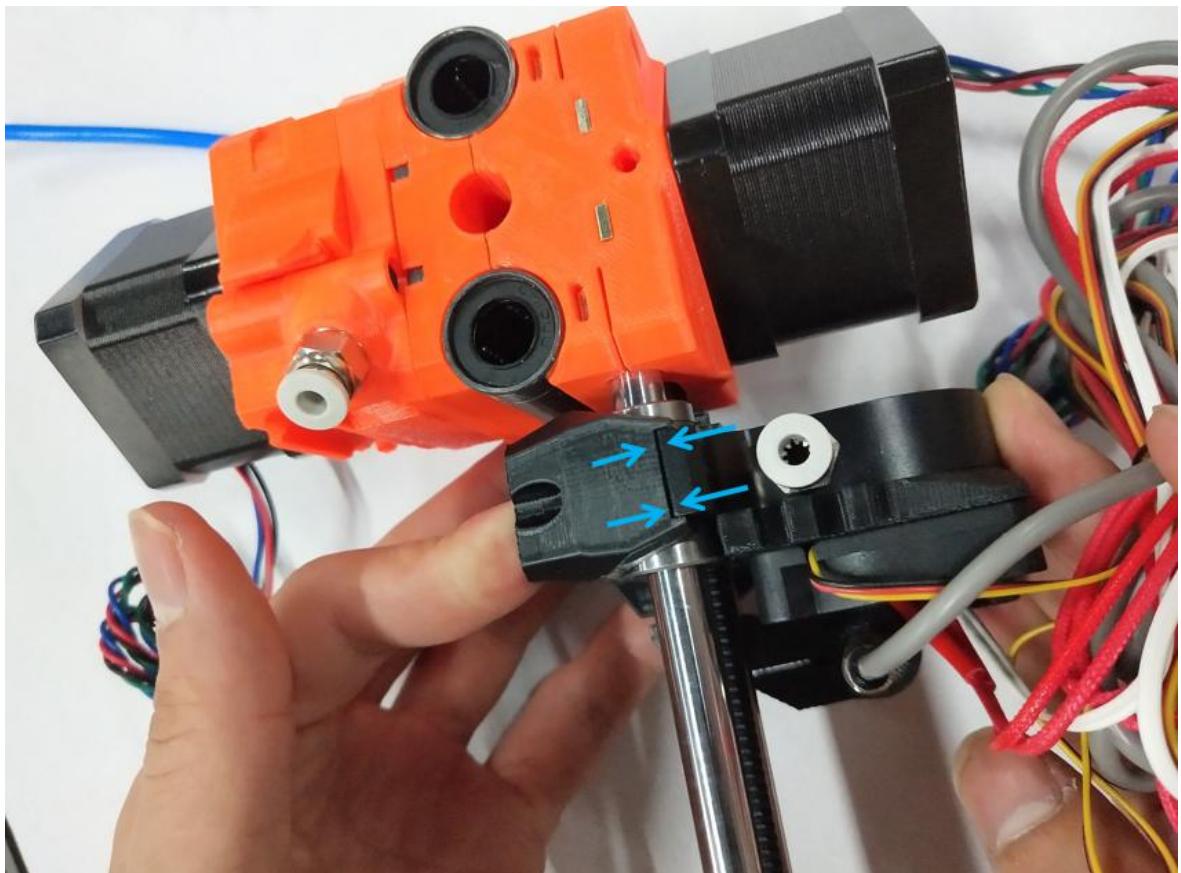


Figure 2.13.3

C: As shown in Figure 2.13.4, use 2pcs M3 × 20 to lock the extruder hot end and MINI-x-carriage.

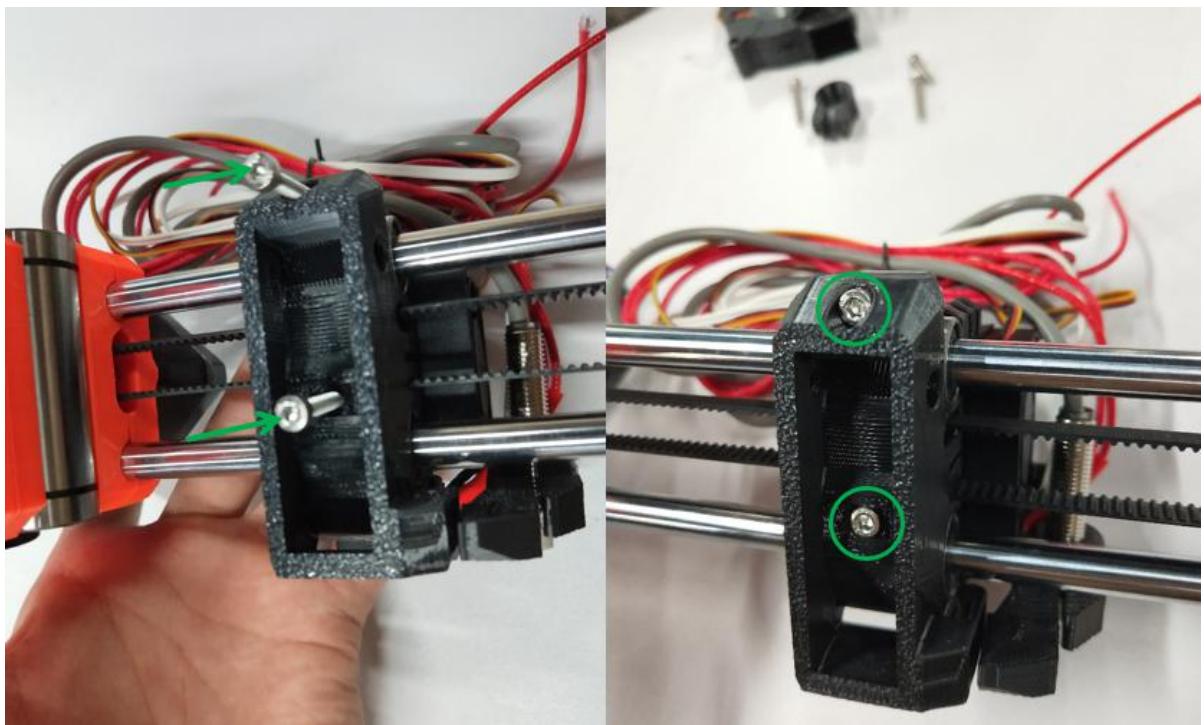


Figure 2.13.4

D: As shown in Figure 2.13.5, install the cold material fan into the MINI-x-carriage, screw in the air outlet of the cold material fan, and lock it with a M3×20 cylindrical head bolt.

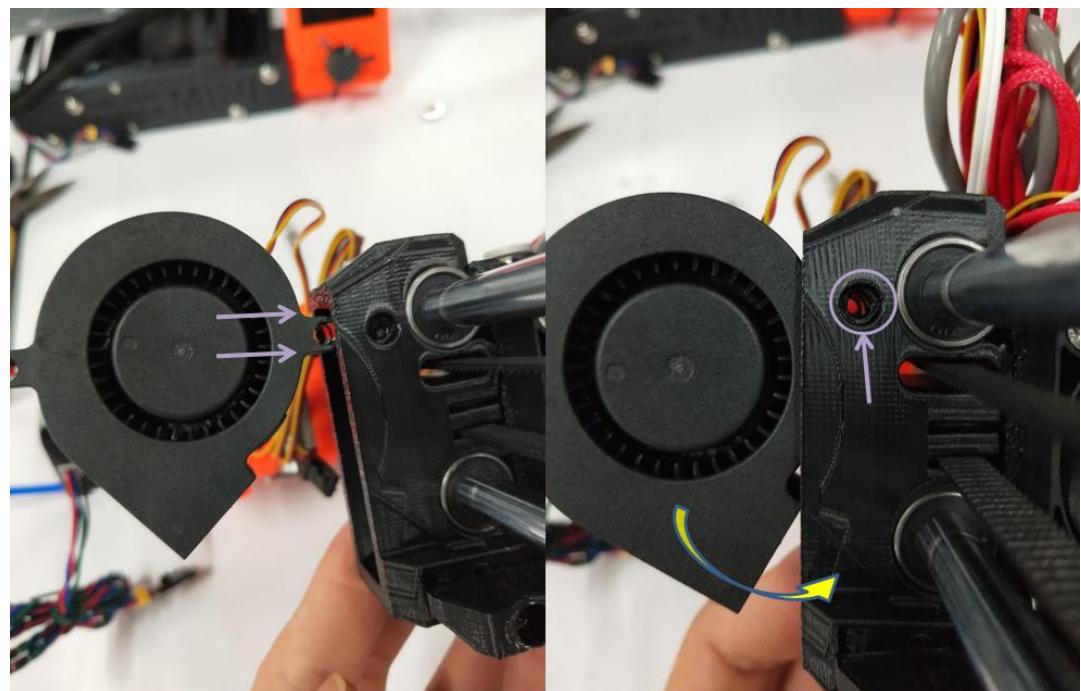


Figure 2.13.5

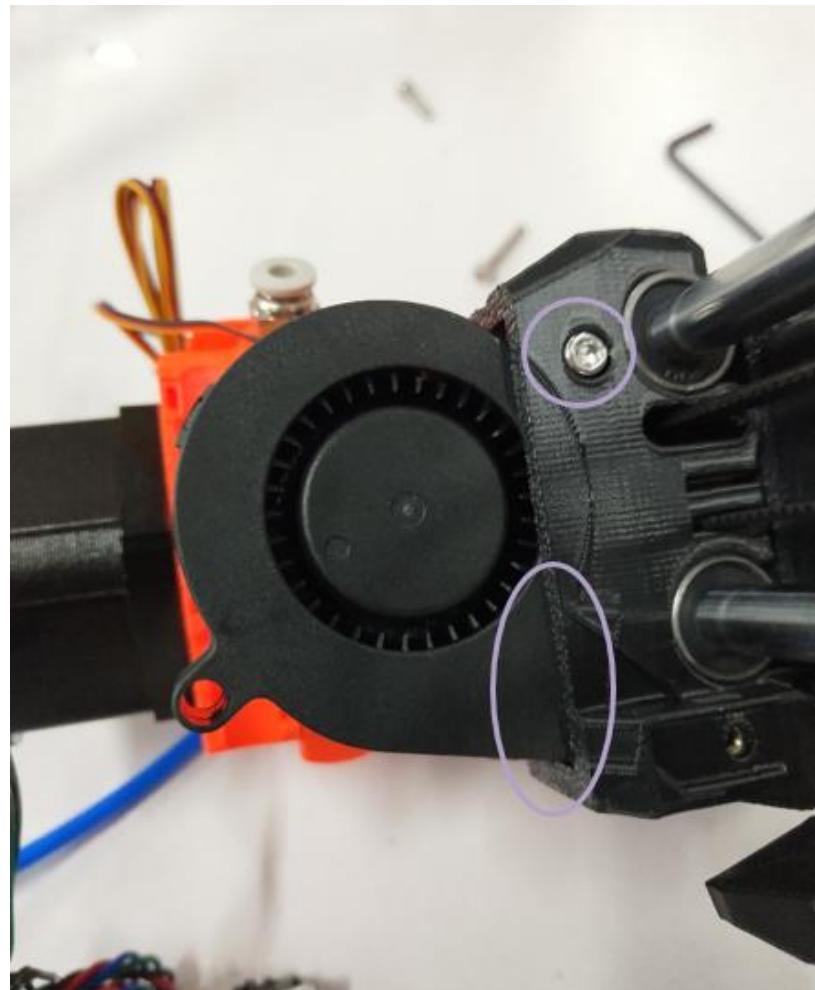


Figure 2.13.6

**Step 2-13-3:** As shown in Figure 2.13.7, wrap the extruder cable together and wrap the cable with a wire harness sleeve.

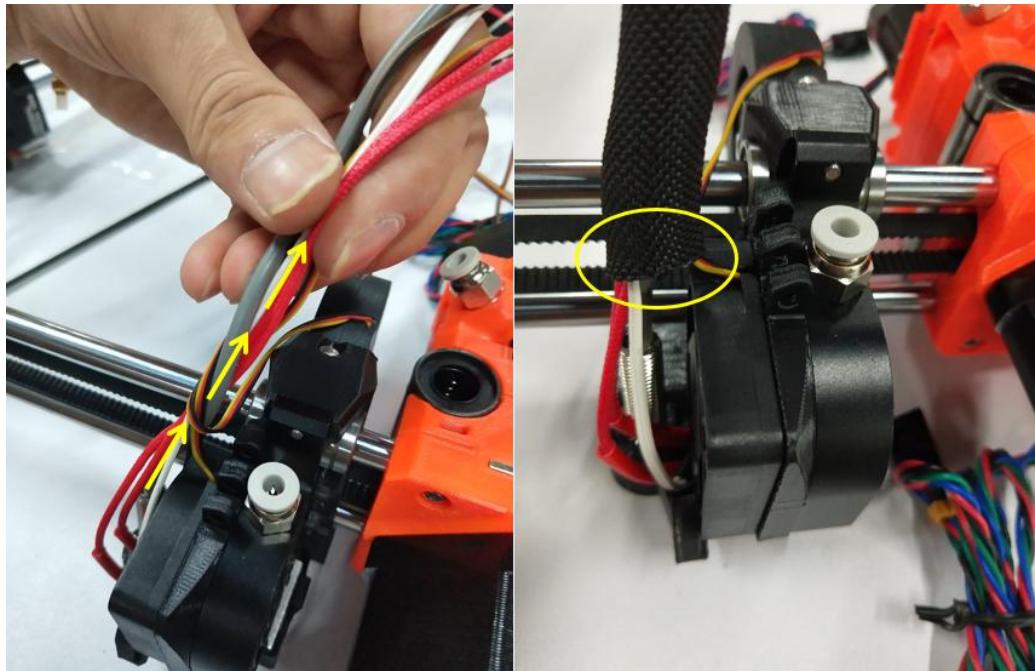


Figure 2.13.7

**Step 2-13-4:** as shown in Figure

A: As shown in Figure 2.13.8, use MINI-fan-spacer-clip to wrap the wire harness sleeve (note that the cable of the cold material fan does not bypass the MINI-fan-spacer-clip print) and install it into the extrusion. In the MINI-fan-spacer on board, the through holes of MINI-fan-spacer-clip and MINI-fan-spacer should be concentric.

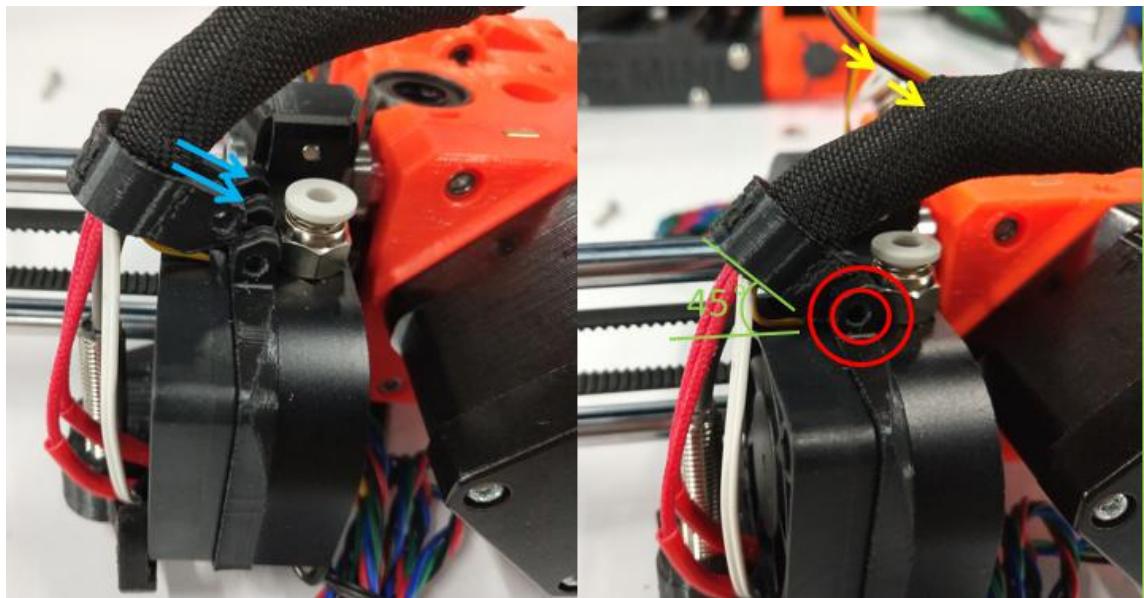


Figure 2.13.8

B: As shown in Figure 2.13.9, after step A is completed, lock a M3×20 cylindrical head bolt, tighten the MINI-fan-spacer-clip, and then tighten the wire harness sleeve with a cable tie .

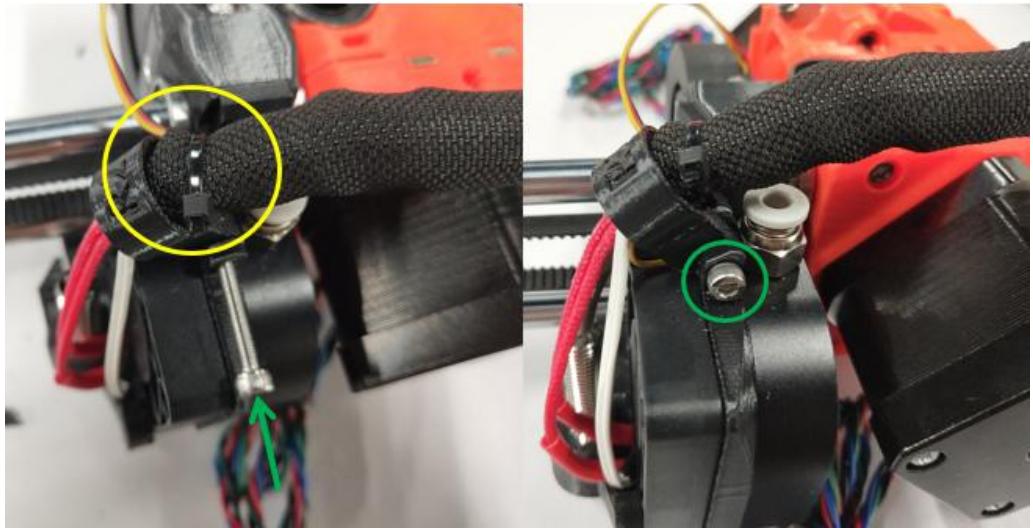


Figure 2.13.9

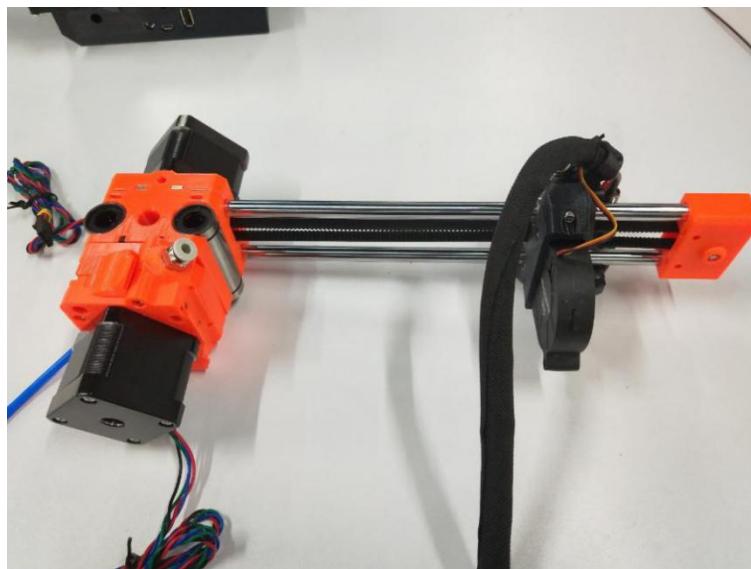


Figure 2.13.10

**Step 2-13-5:** As shown in Figure 2.13.11, pass 3pcs cable ties into the three through holes on the MINI-extruder-front.

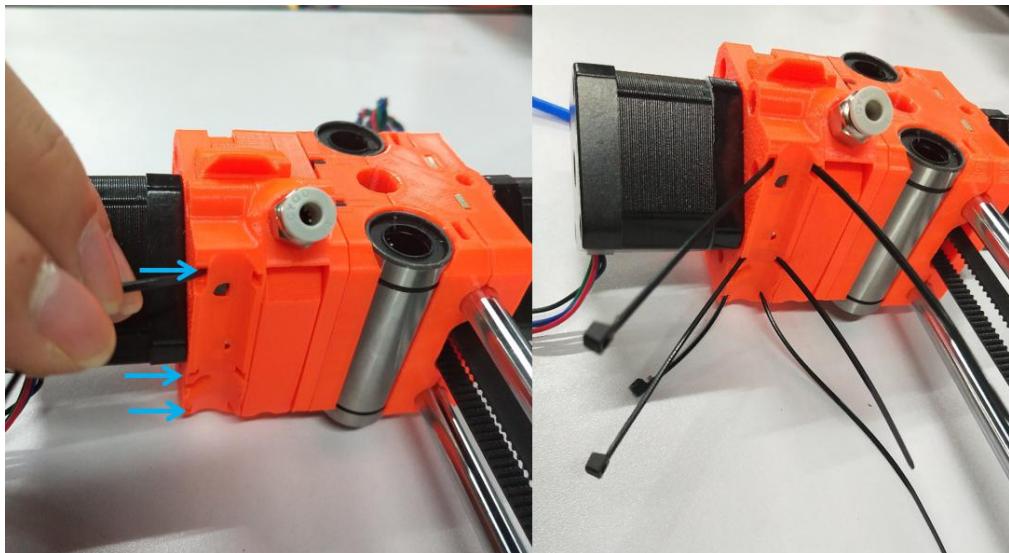


Figure 2.13.11

**Step 2-13-6:** as shown in Figure

A: As shown in Figure 2.13.12, slide the X-axis extruder slider to the far right.

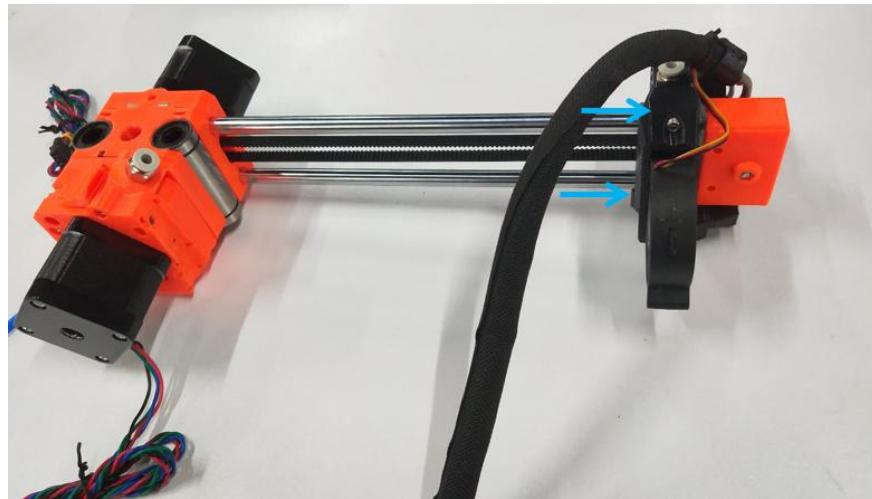


Figure 2.13.12

B: As shown in Figure 2.13.13, tighten the cable tie and tighten the wire harness sleeve, and use scissors to remove the excess cable tie.

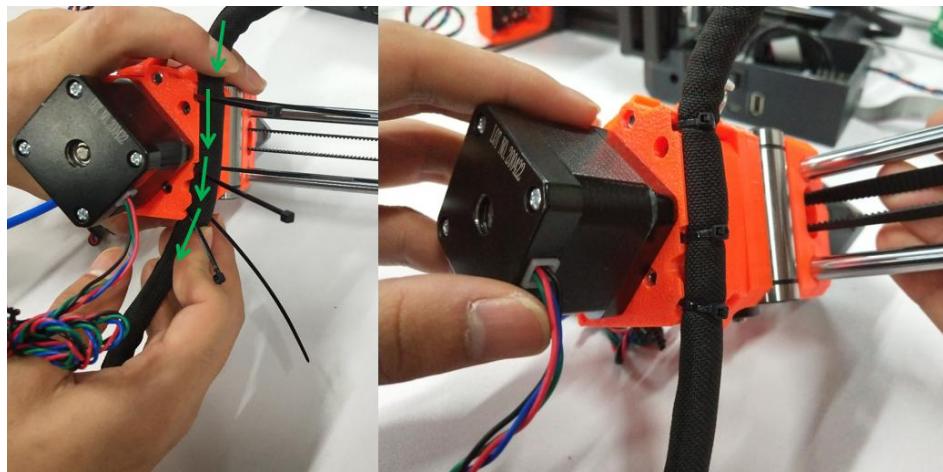


Figure 2.13.13

**Step 2-13-7:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

## (14) Installation of Teflon tube of extruder

**Step 2-14-1:** As shown in Figure 2.14.1, prepare the materials and check whether the quantity of materials is correct, prepare for the next installation.

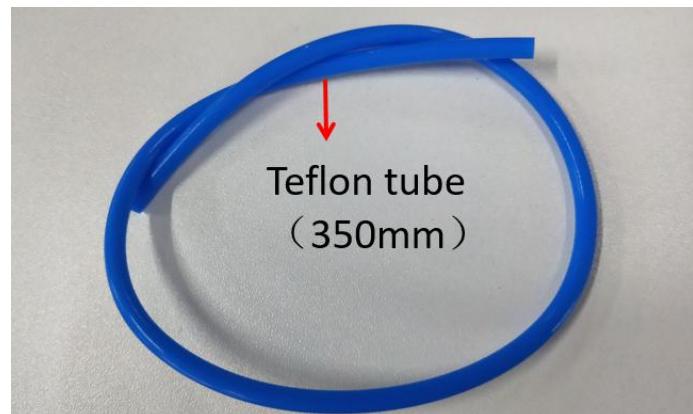


Figure 2.14.1

**Step 2-14-2:** As shown in Figure 2.14.2, insert one end of the Teflon tube into the fast connector-peg at the hot end of the extruder. (Pay attention to make sure that the Teflon tube is inserted all the way)

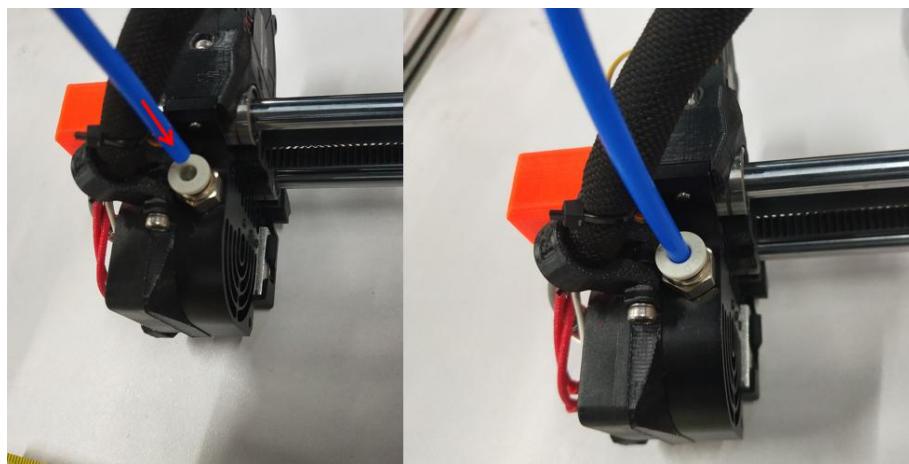


Figure 2.14.2

**Step 2-14-3:** As shown in Figure 2.14.3, insert the other end of the Teflon tube into the fast connector-peg on the MINI-extruder-rear. (Pay attention to make sure that the Teflon tube is inserted all the way)

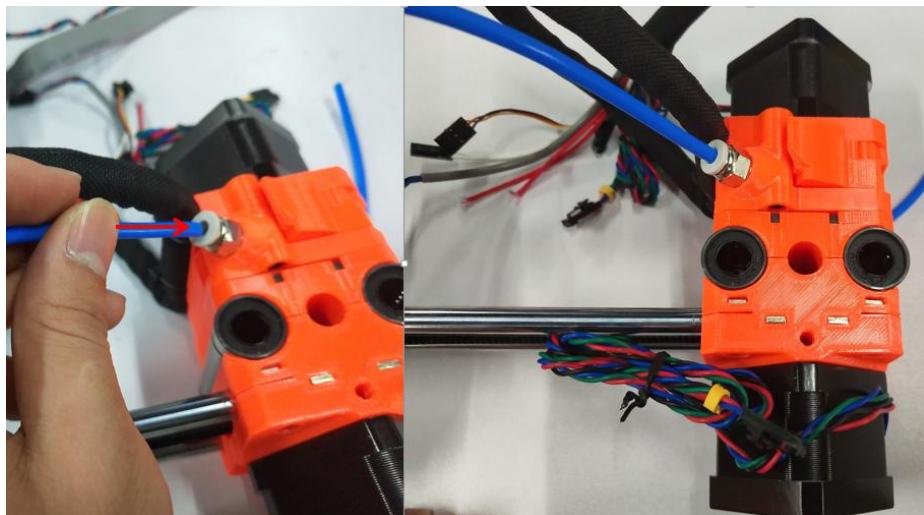


Figure 2.14.3

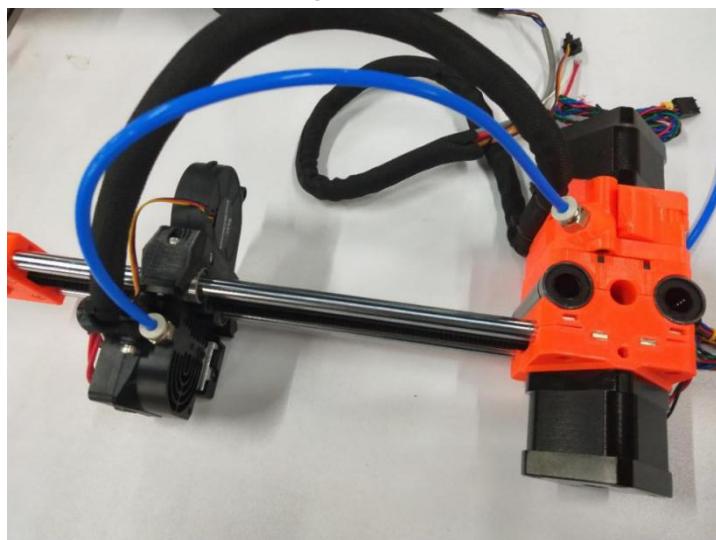


Figure 2.14.4

**Step 2-14-4:** After completing the assembly process, check whether the installation direction is correct and whether the Teflon tubes are all inserted.

### 3. Assembly of Z axis module

#### (1) Assembly of MINI-z-top

**Step 3-1-1:** As shown in Figure 3.1.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

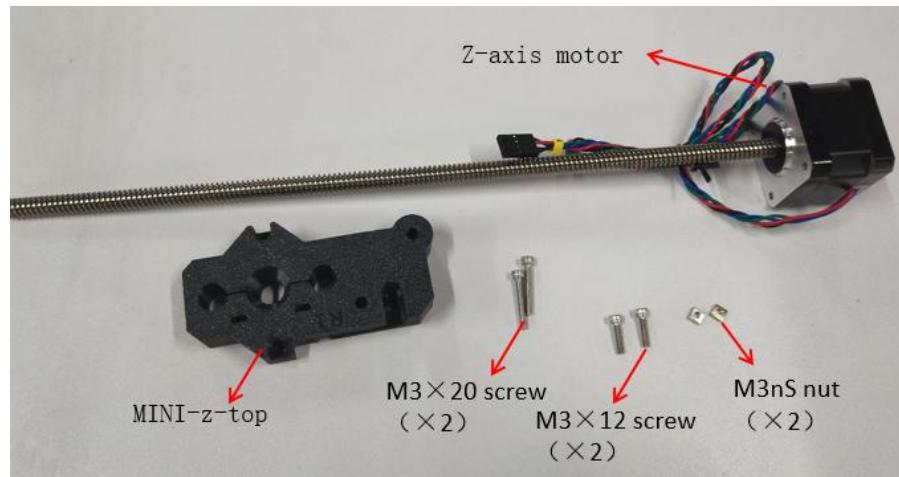


Figure 3.1.1

**Step 3-1-2:** As shown in Figure

A: As shown in Figure 3.1.2, embed 2 square nuts into the MINI-z-top.

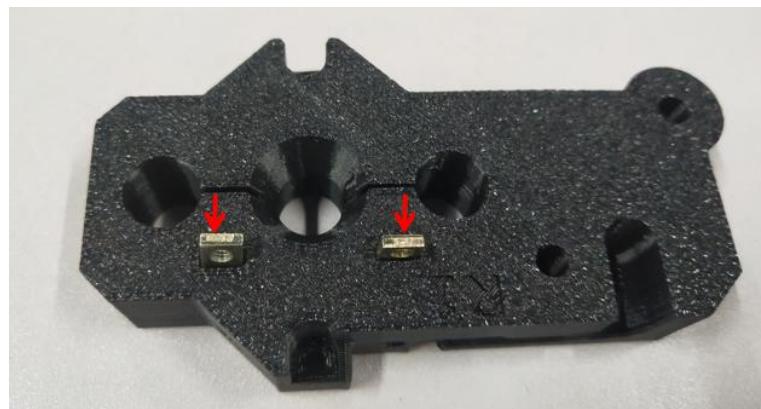


Figure 3.1.2

B: As shown in Figure 3.1.3, pre-tighten and lock 2pcs M3×20 cylindrical head bolts in the MINI-z-top print.

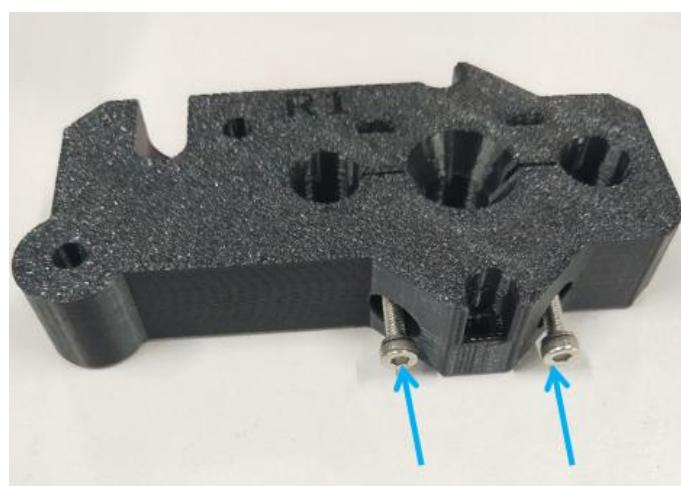


Figure 3.1.3

**Step 3-1-3:** as shown in Figure 3.1.4

A: Install MINI-z-top on the Z-axis motor. (Pay attention to the installation direction between the print and the Z-axis motor)

B: Tighten it with 2pcs M3×12 cylindrical head bolts.

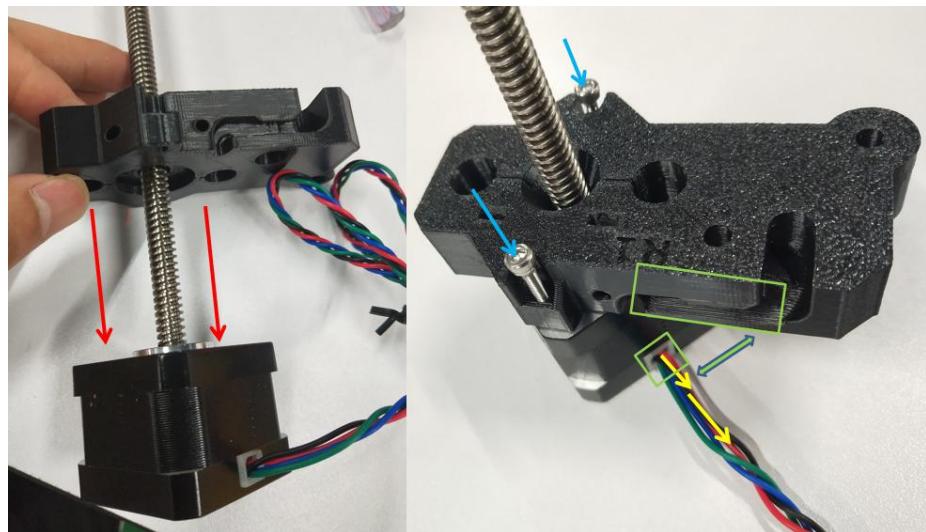


Figure 3.1.4

**Step 3-1-4:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

## (2) Installation of MINI-z-bottom

**Step 3-2-1:** As shown in Figure 3.2.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

project name	specification	quantity	unit	reference
MINI-z-bottom		1	pcs	A
PRMINI-M03		1	pcs	B
mainboard	prasa MINI	1	pcs	C
Key switch		1	pcs	D
Display cable		1	pcs	E
screws	M3×20	7	pcs	F
screws	M3×8	4	sec	G
heat sink		4	pcs	H
M3n nut		4	pcs	I
M3nS nut		8	pcs	J

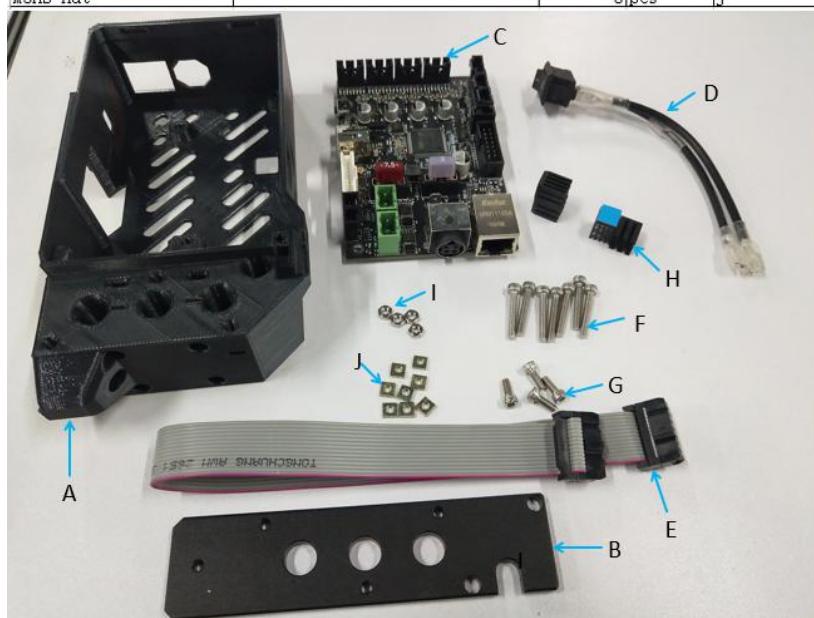


Figure 3.2.1

**Step 3-2-2:** As shown in Figure

A: As shown in Figure 3.2.2, insert 4pcs M3 hex nuts into the MINI-z-bottom.

B: As shown in Figure 3.2.2, insert 2pcs M3 square nuts into the MINI-z-bottom

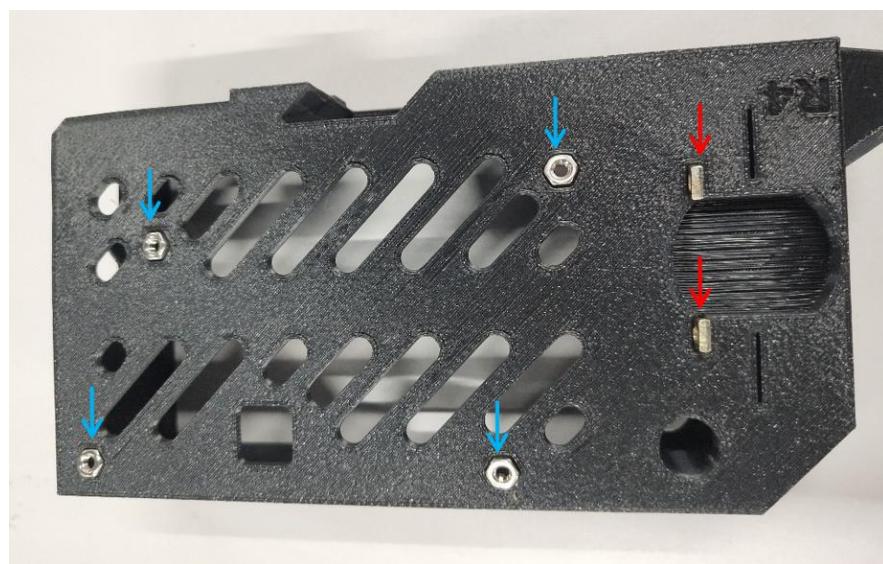


Figure 3.2.2

C: As shown in Figure 3.2.3, embed 4pcs M3 square nuts into the MINI-z-bottom.

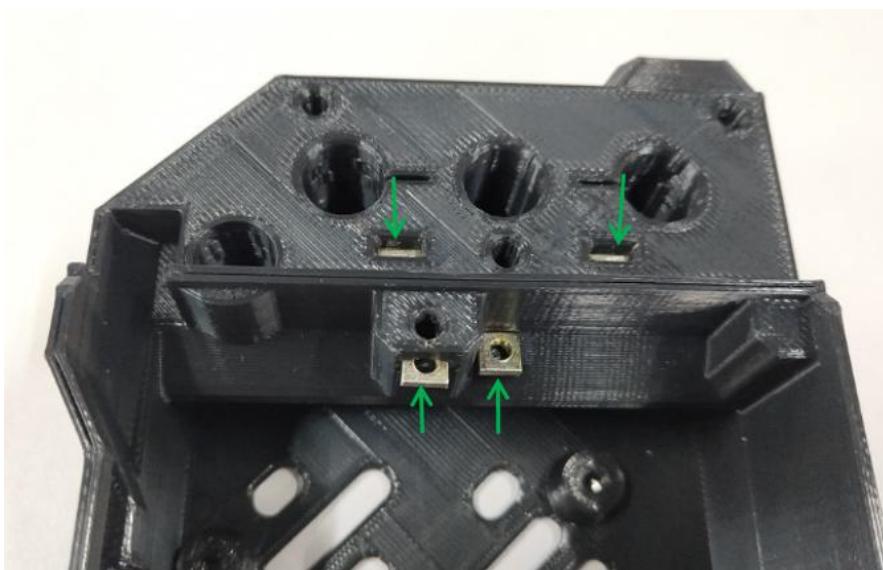


Figure 3.2.3

D: As shown in Figure 3.2.4, insert an M3 square nut into the MINI-z-bottom.

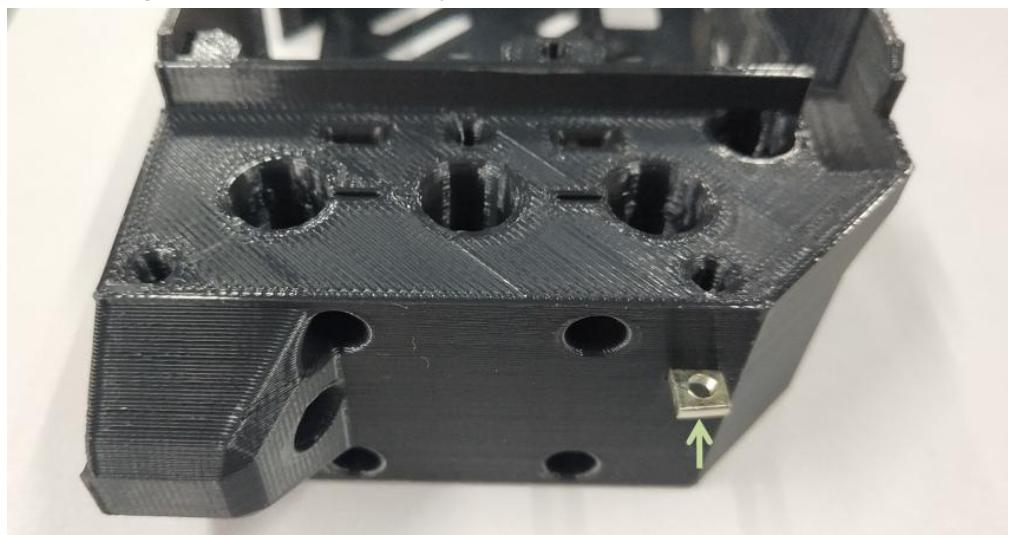


Figure 3.2.4

E: As shown in Figure 3.2.5, insert an M3 square nut into the MINI-z-bottom.

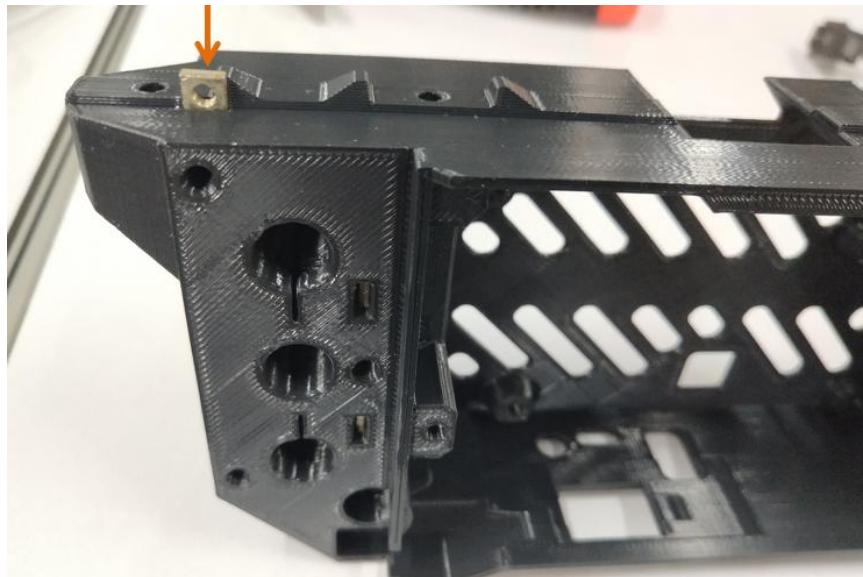


Figure 3.2.5

**Step 3-2-3:** As shown in Figure

A: As shown in Figure 3.2.6, remove the tape from the heat sink of the motherboard.

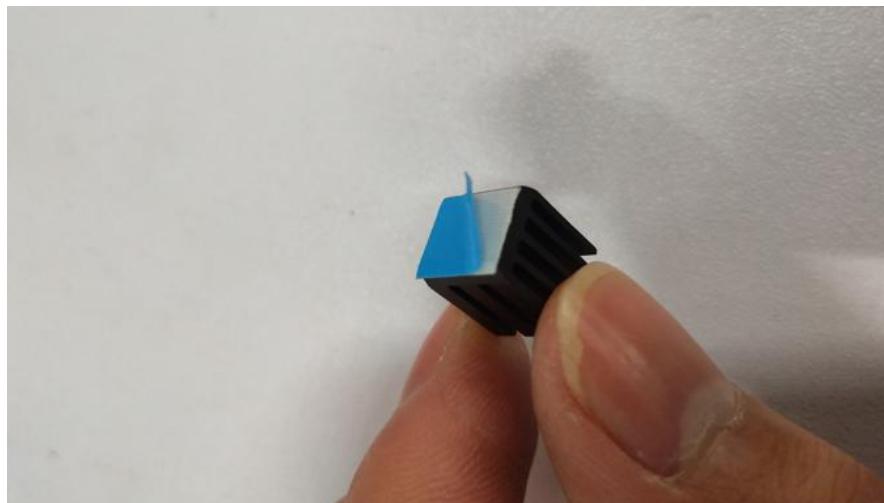


Figure 3.2.6

B: As shown in Figure 3.2.7, attach a heat sink to the four motor drives on the motherboard

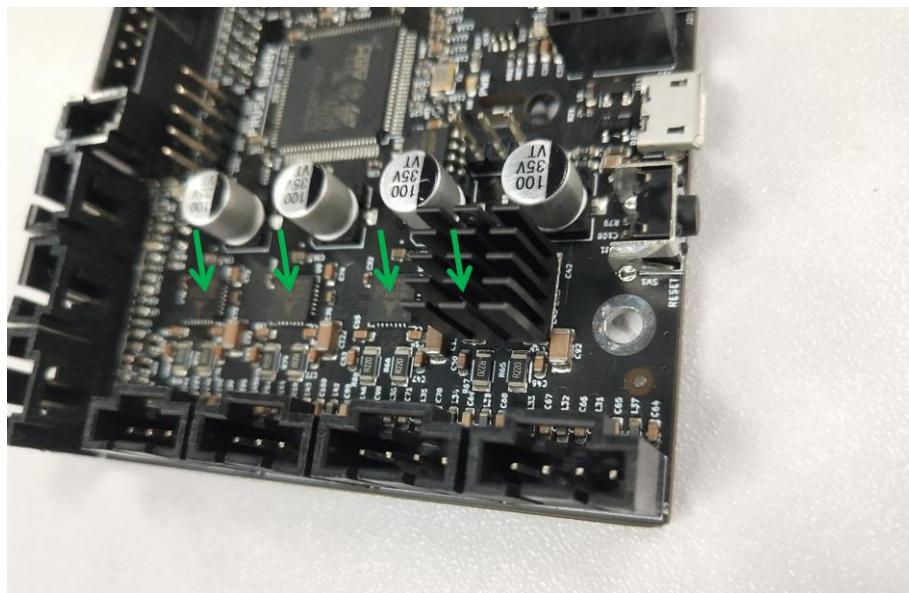


Figure 3.2.7

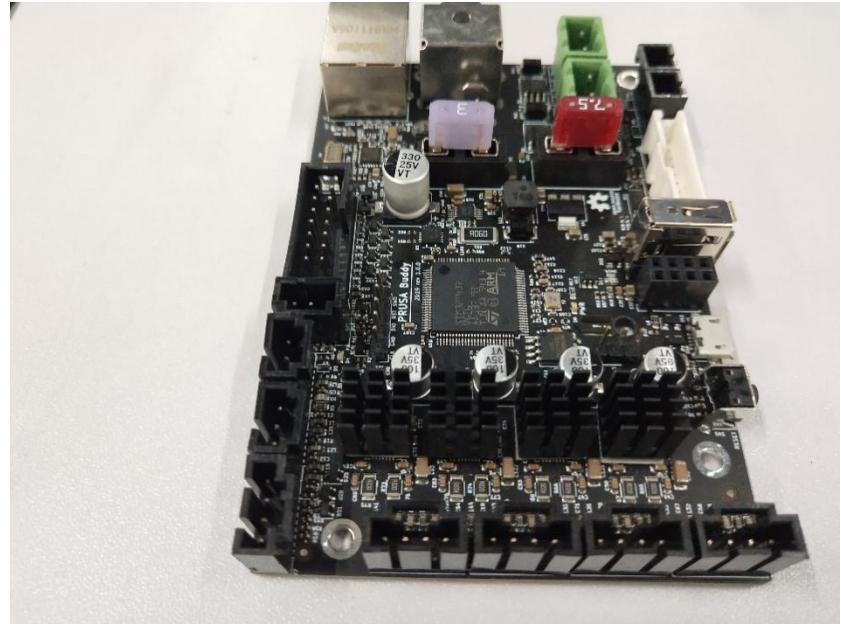


Figure 3.2.8

C: As shown in Figure 3.2.9, install the motherboard into the MINI-z-bottom and fasten it with 4pcs M3×8 cylindrical head bolts. (Pay attention to the installation direction of the motherboard)

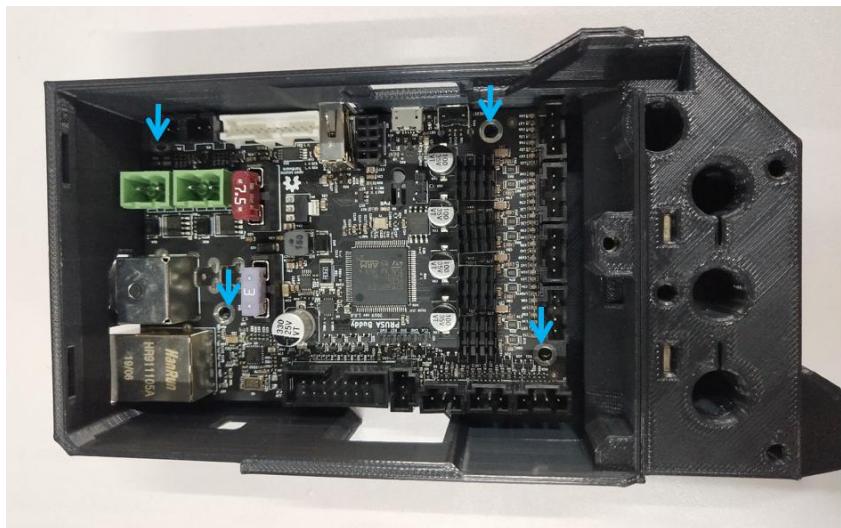


Figure 3.2.9

D: Install the button switch to MINI-z-bottom as shown in Figure 3.2.10. (Pay attention to the installation direction of the switch)

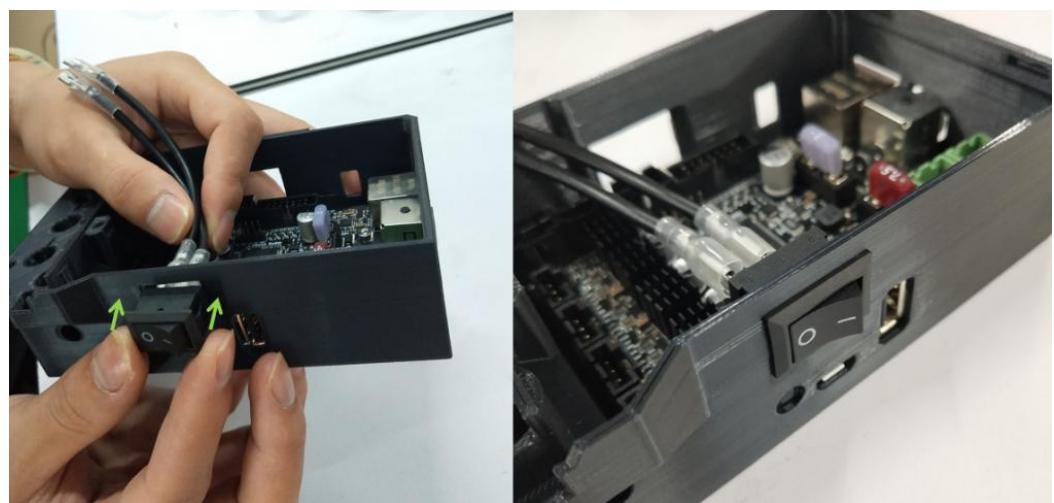


Figure 3.2.10

E: Connect the switch cable to the motherboard as shown in Figure 3.2.11.

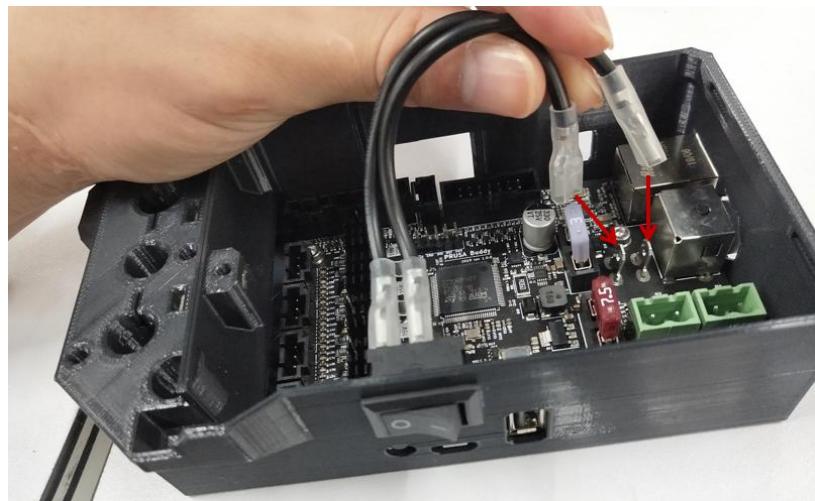


Figure 3.2.11

**Step 3-2-4:** As shown in Figure

A: As shown in Figure 3.2.12, pre-tighten 4pcs M3 × 20 cylindrical head bolts into the four bolt holes on the MINI-z-bottom.

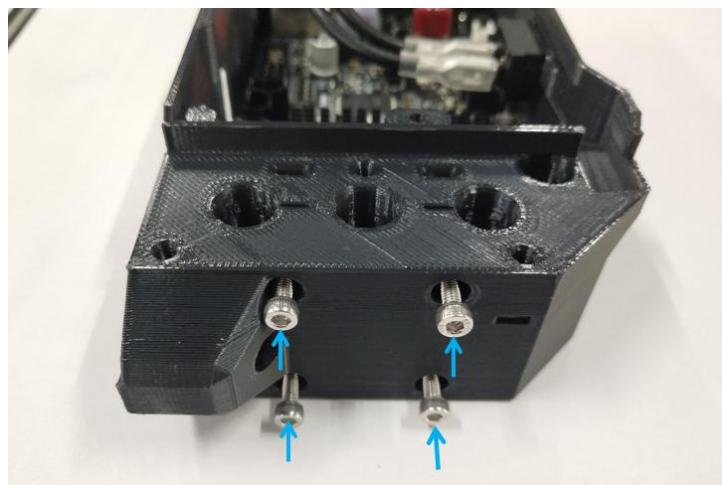


Figure 3.2.12

B: As shown in Figure 3.2.13, install the Z-axis profile fixing plate PRMINI-M03 on the MINI-z-bottom, and then lock it with 3pcs M3 × 20 cylindrical head bolts. (Note the installation direction of PRMINI-M03)

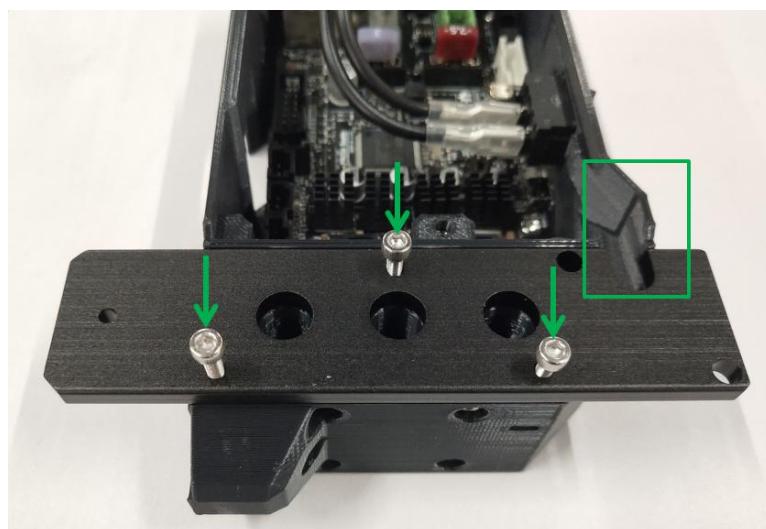


Figure 3.2.13

C: As shown in Figure 3.2.14, pass the display cable through the notch of MINI-z-bottom and insert the terminal into the motherboard

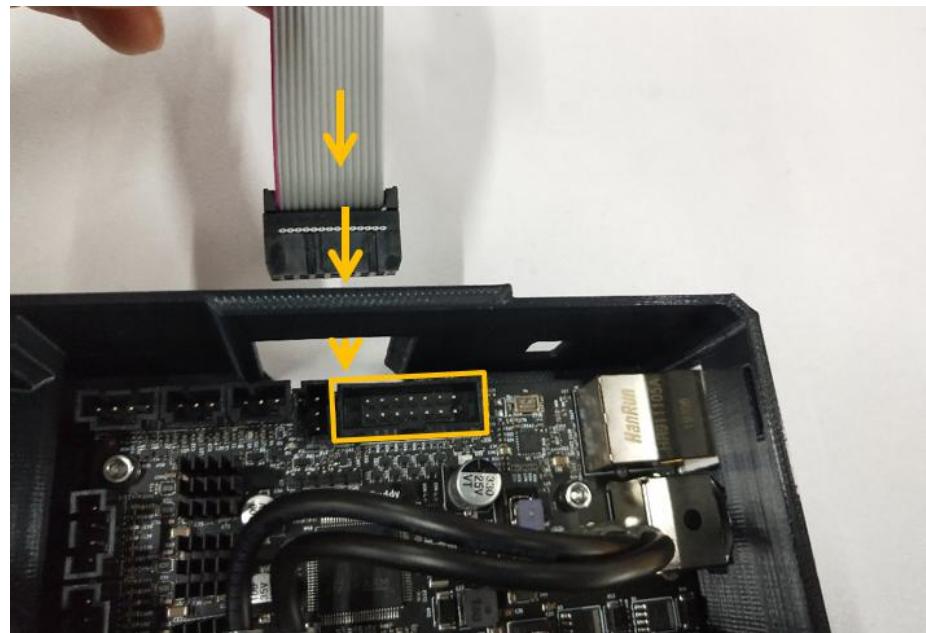


Figure 3.2.14

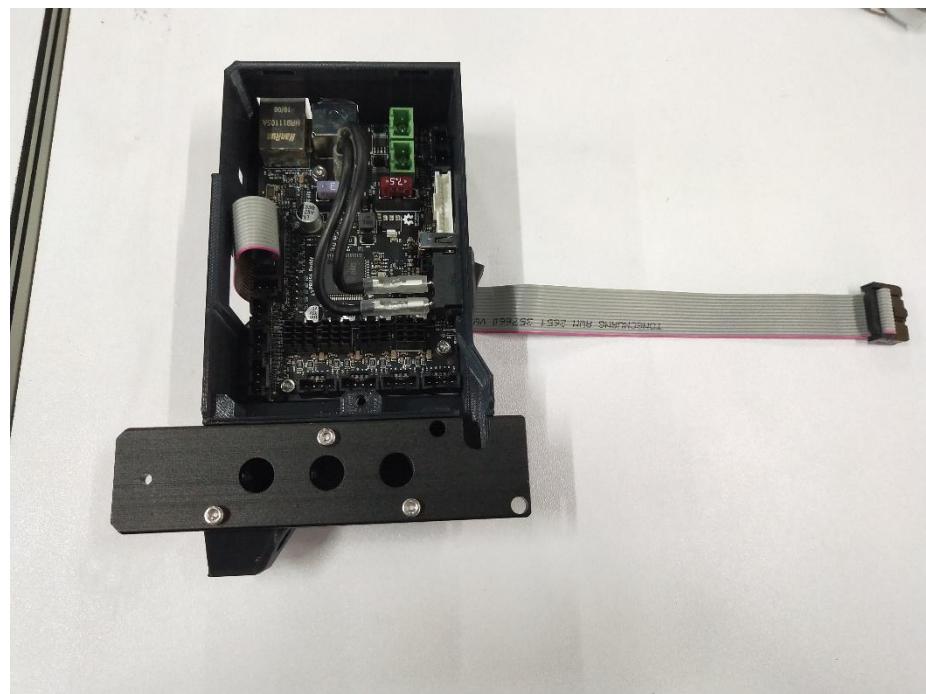


Figure 3.2.15

**Step 3-2-5:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

### (3) Installation of Z-axis aluminum profile and smooth rod

**Step 3-3-1:** As shown in Figure 3.3.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

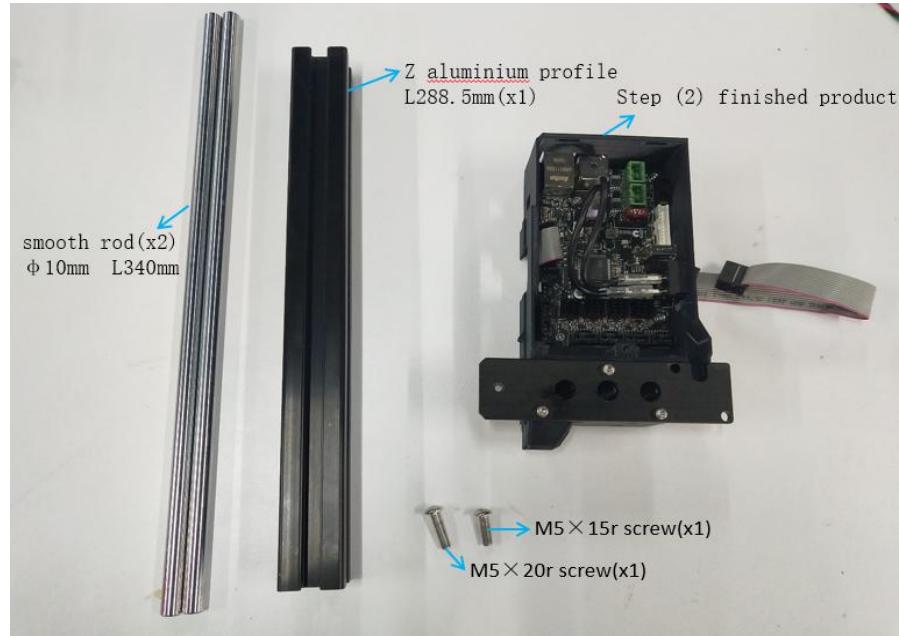


Figure 3.3.1

**Step 3-3-2:** As shown in Figure

A: Install the Z-axis smooth rod into PRMINI-M03 as shown in Figure 3.3.2. (Note to insert to the bottom)

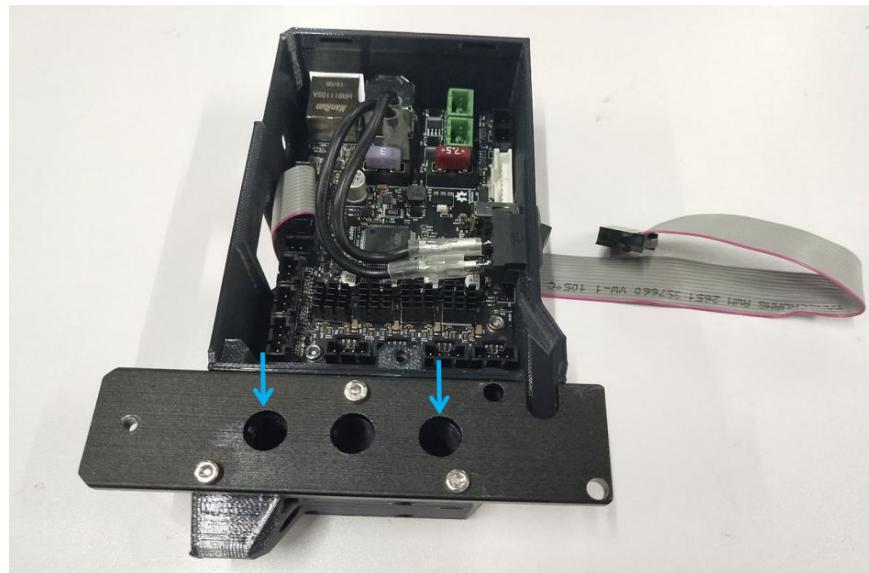


Figure 3.3.2

B: As shown in Figure 3.3.3, install the Z-axis aluminum profile on PRMINI-M03.

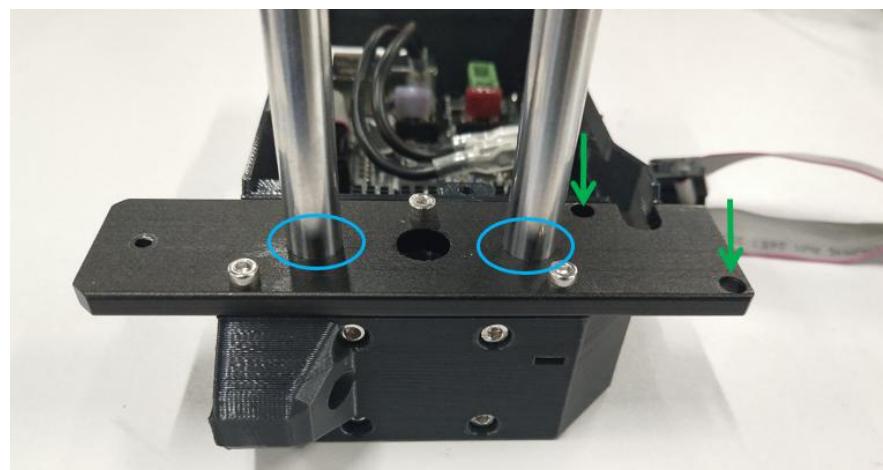


Figure 3.3.3

C: As shown in Figure 3.3.4, use one M5×15 semi-circular head bolt and one M5×20 semi-circular head bolt to lock the aluminum profile.

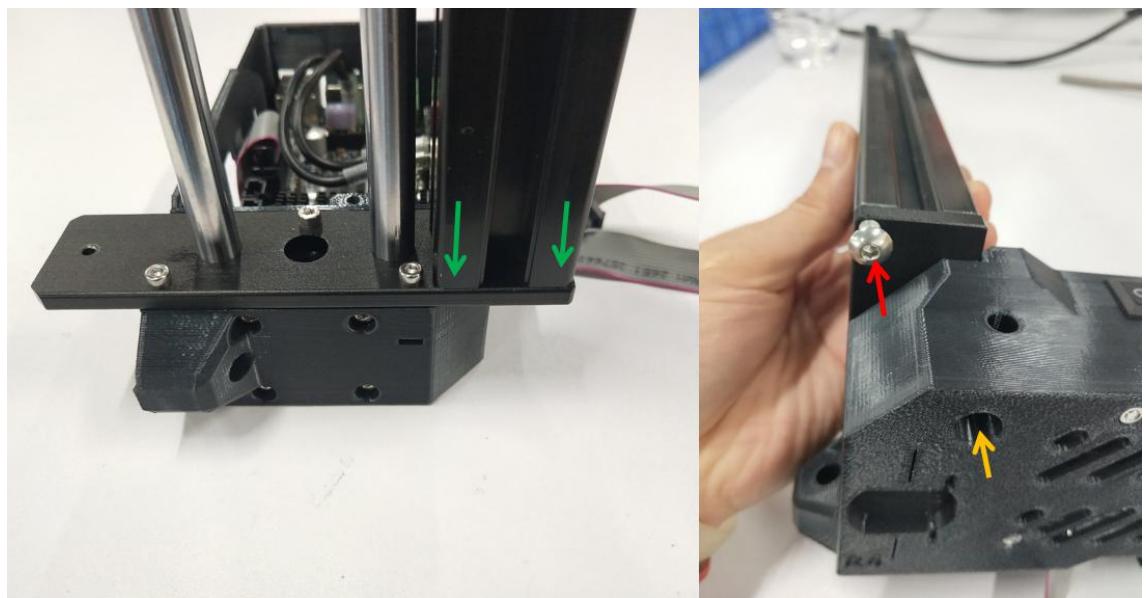


Figure 3.3.4

**Step 3-3-3:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

## 4. X 轴模块和 Z 轴模块组合

### (1) Combination of X-axis module and Z-axis module

**Step 4-1-1:** As shown in Figure 4.1.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

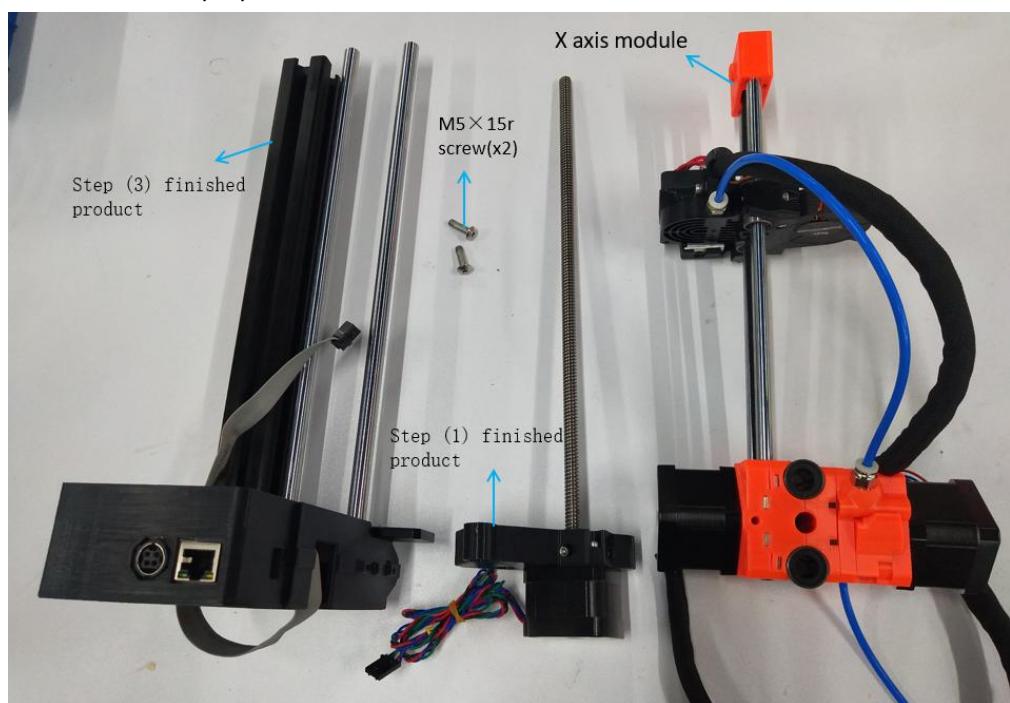


Figure 4.1.1

**Step 4-1-2:** as shown in Figure 4.1.2

A: Slide the slider of the extrusion head to the left to the end.

B: Screw the Z-axis motor screw shaft into the screw nut of the X module. (Note that when the screw is screwed into the nut, the screw must be screwed in vertically and cannot be tilted. The distance between the MINI-z-top and the X-axis module is 100mm)

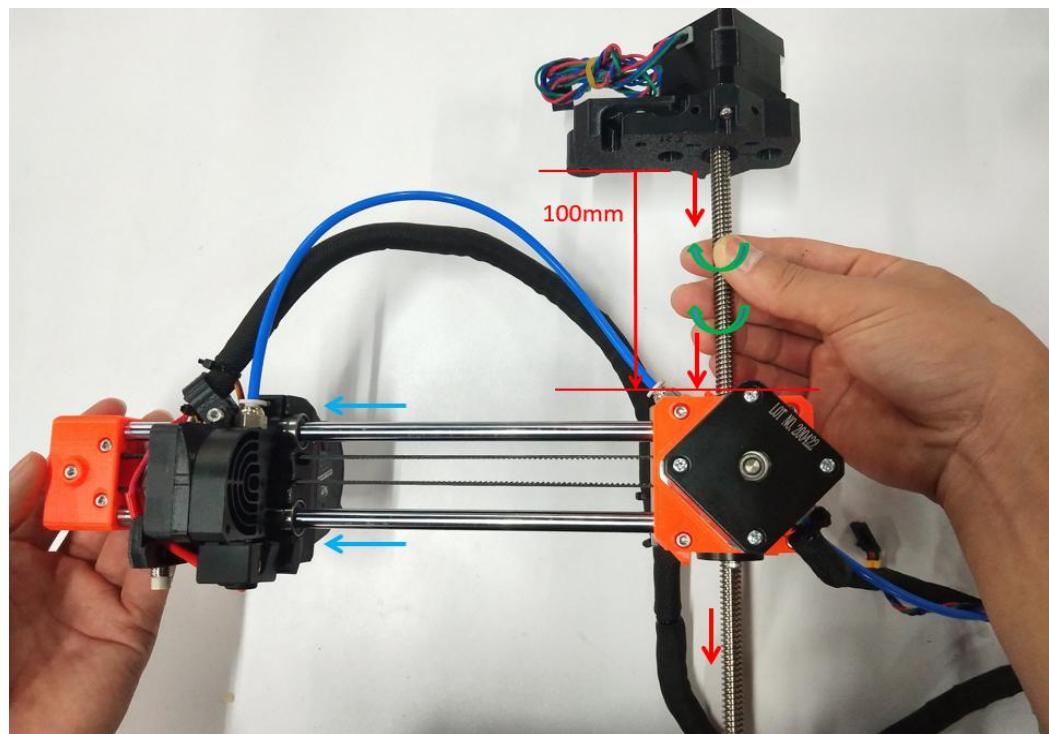


Figure 4.1.2

**Step 4-1-3:** Install the X-axis module installed in the previous step into the Z-axis module as shown in Figure 4.1.3. (Note that the linear bearing on the X-axis module must be gently inserted into the Z-axis module directly vertical the smooth rod, and cannot be leaned, otherwise the balls in the linear bearing may fall easily)

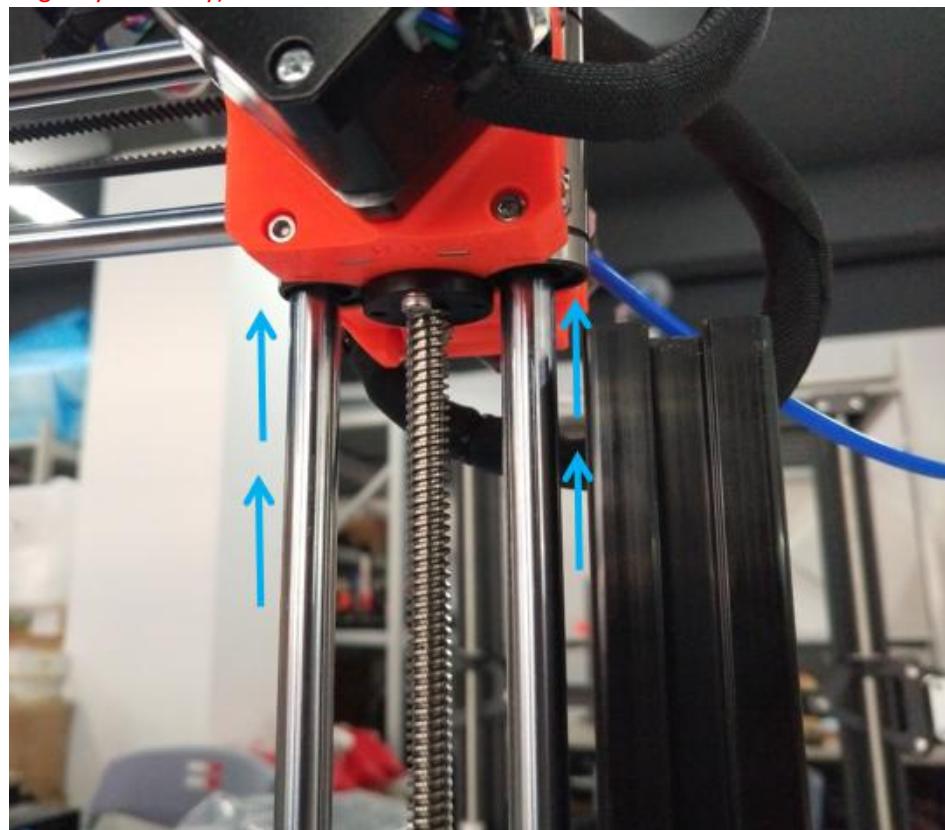


Figure 4.1.3

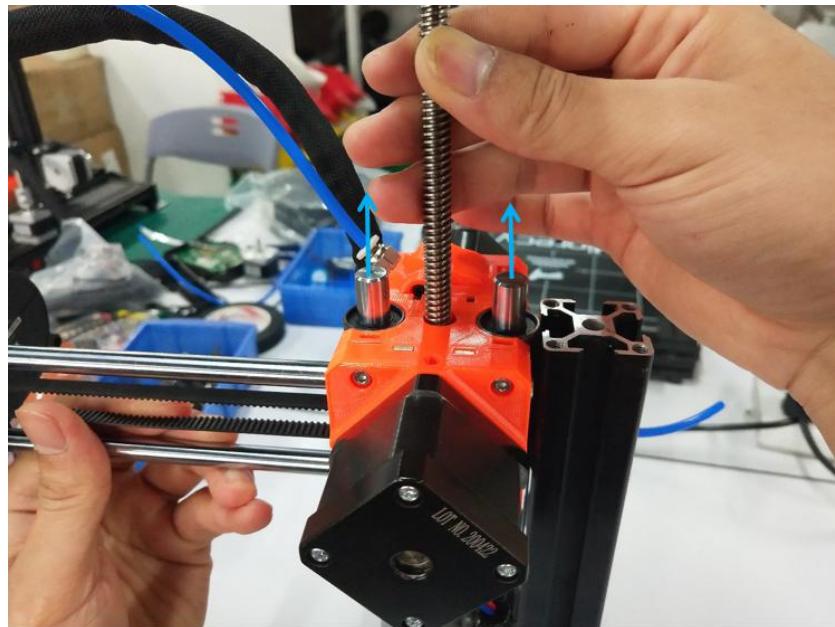


Figure 4.1.4

**Step 4-1-4:** As shown in Figure 4.1.5, install the Z-axis smooth rod into the two mounting holes on the MINI-z-top. The MINI-z-top must be knocked tightly against the Z-axis aluminum Profiles.

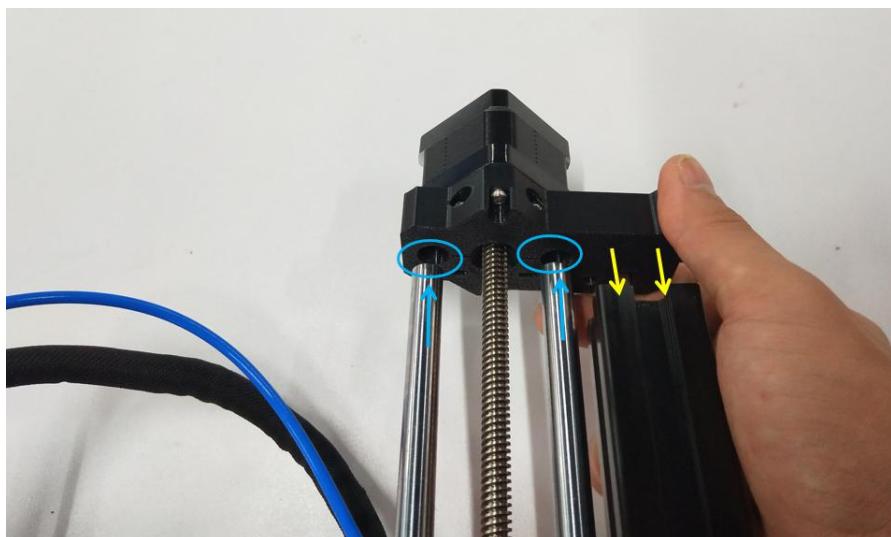


Figure 4.1.5

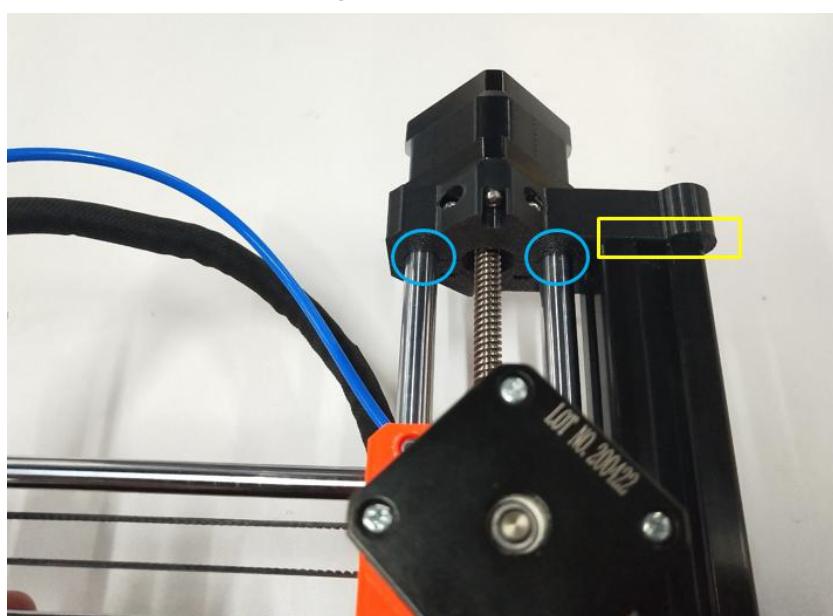


Figure 4.1.6

**Step 4-1-5:** As shown in Figure 4.1.7, use 2pcs M5×15 semi-circular head bolts to lock the MINI-z-top and Z-axis aluminum profiles.

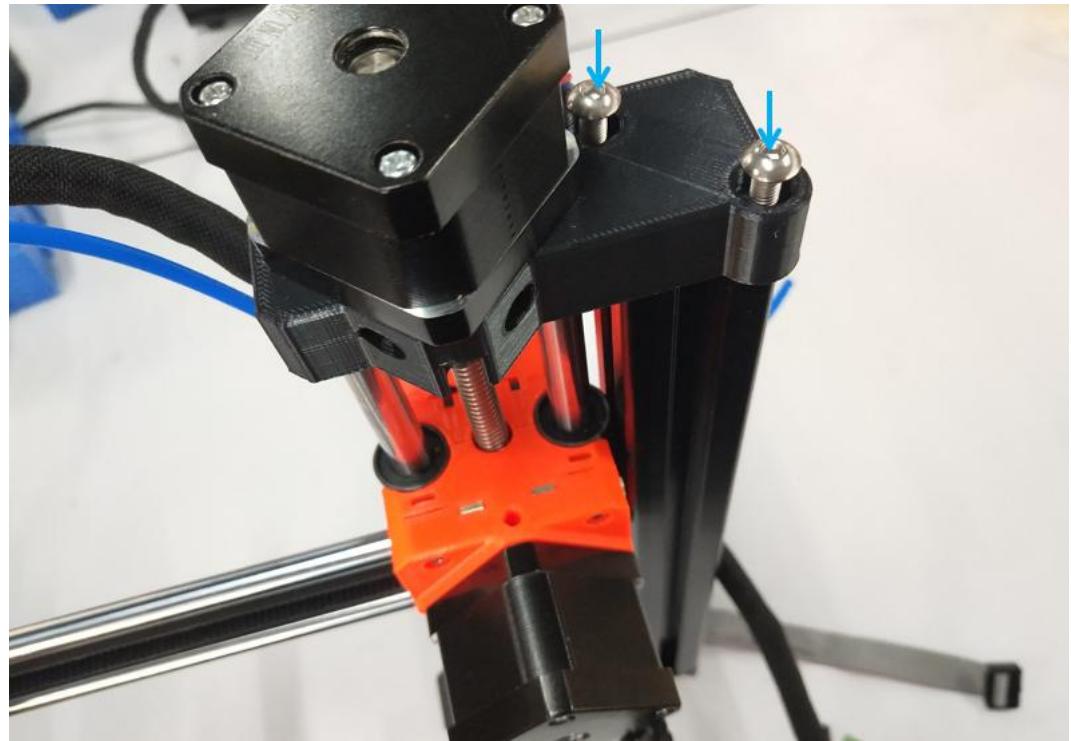


Figure 4.1.7

**Step 4-1-6:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

## (2) Cable connection between X-axis module and Z-axis module

**Step 4-2-1:** As shown in Figure 4.2.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

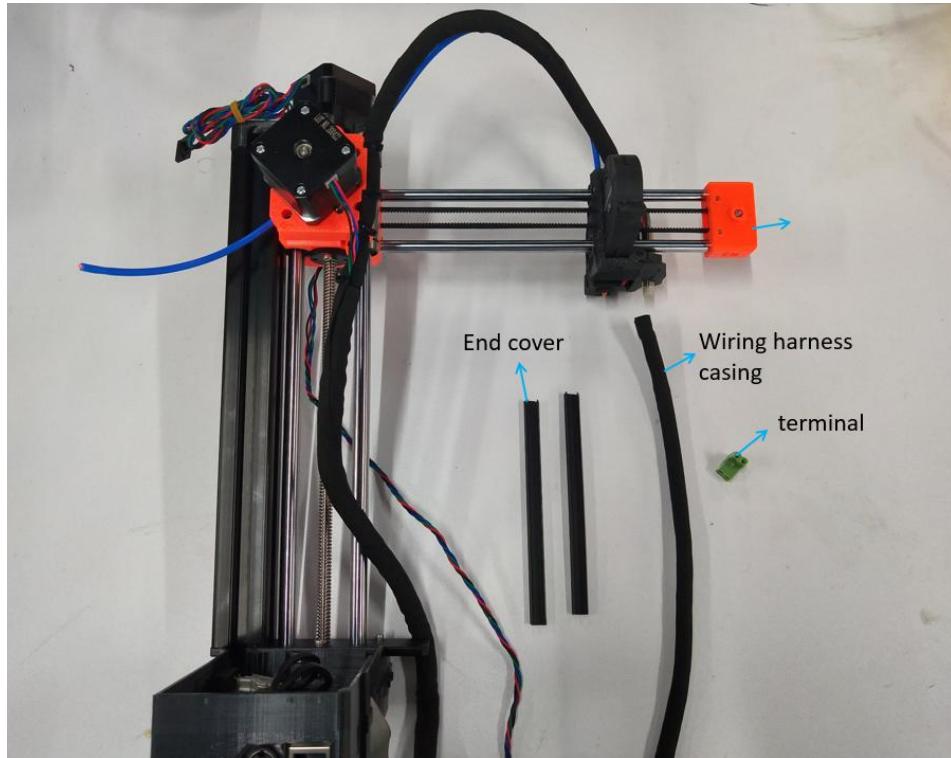


Figure 4.2.1

**Step 4-2-2:** As shown in Figure 4.2.2, wrap the X-axis motor cable with a wire harness tube, and tie a cable tie to each end of the wire harness tube.

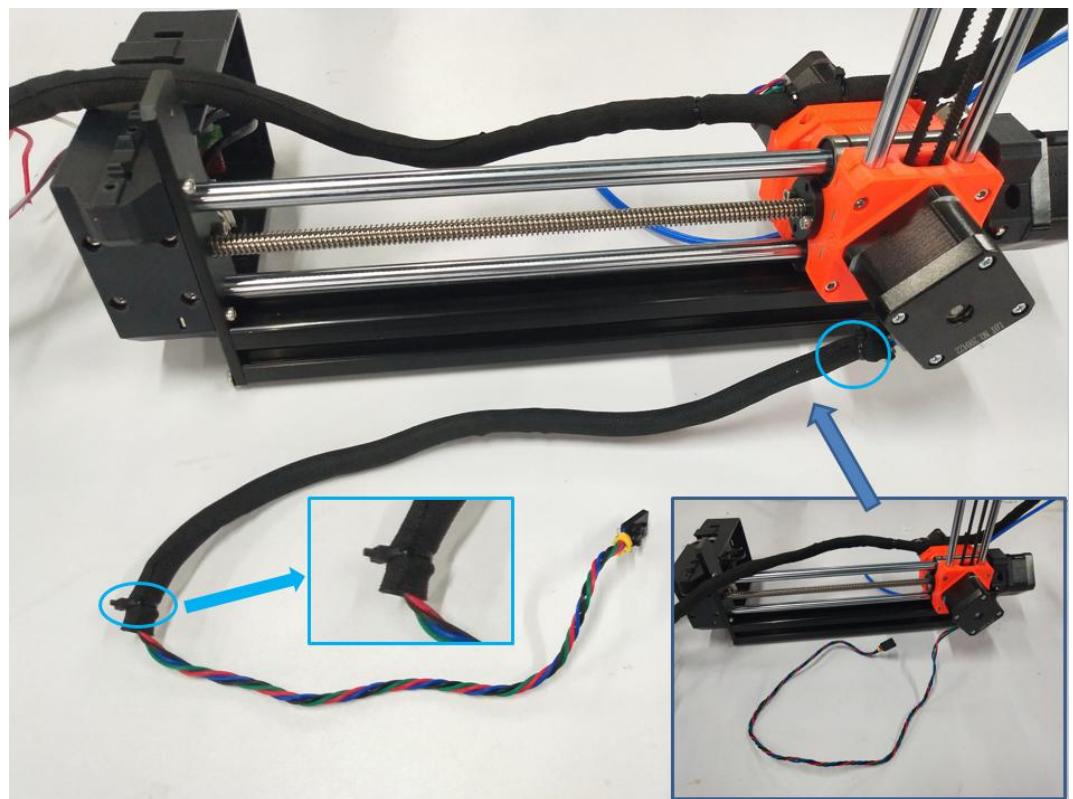


Figure 4.2.2

**Step 4-2-3:** As shown in Figure 4.2.3, raise the X-axis module to the highest position and prepare for the next installation.

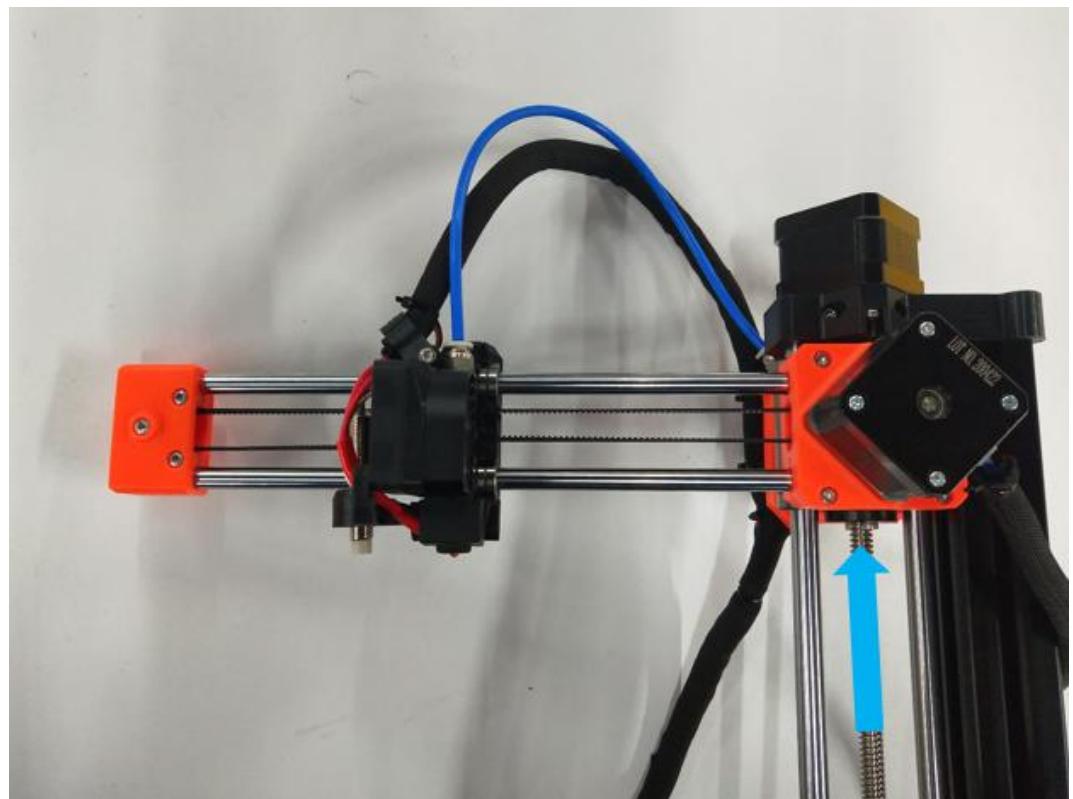


Figure 4.2.3

**Step 4-2-4:** Embed the Z-axis motor cable into the MINI-z-top cable slot as shown in Figure 4.2.4.

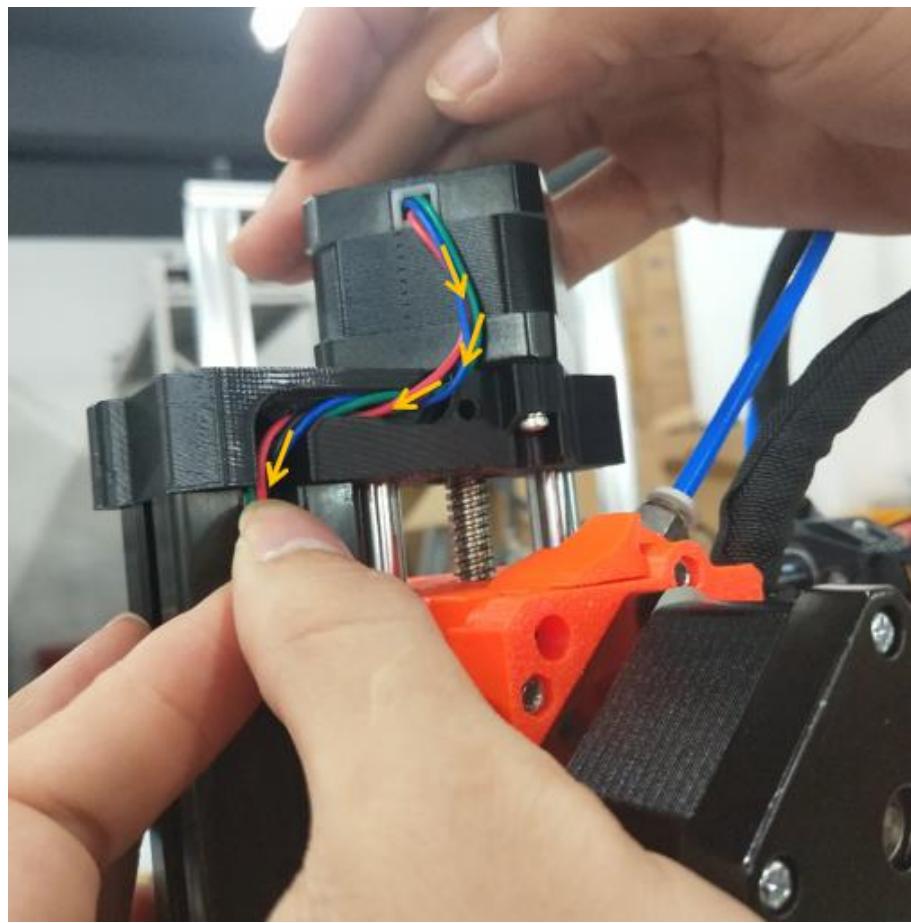


Figure 4.2.4

**Step 4-2-5:** As shown in Figure 4.2.5, insert the aluminum profile cover into the profile groove to wrap the cable.

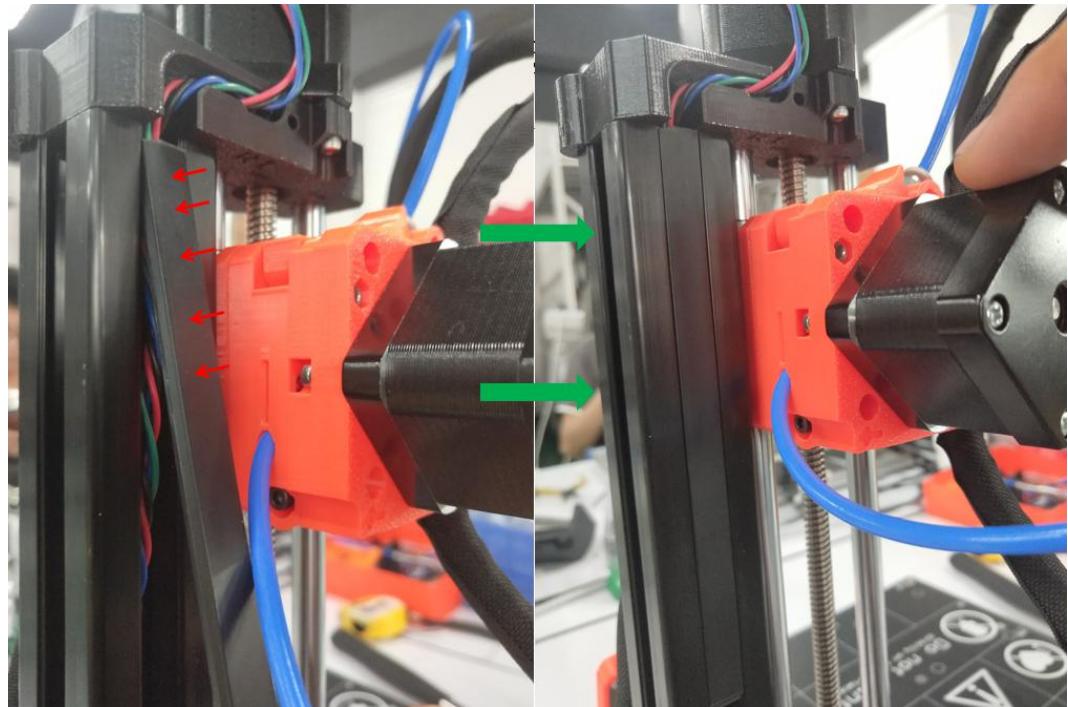


Figure 4.2.5

**Step 4-2-6:** As shown in Figure 4.2.6, the X-axis motor cable is embedded in the profile groove.

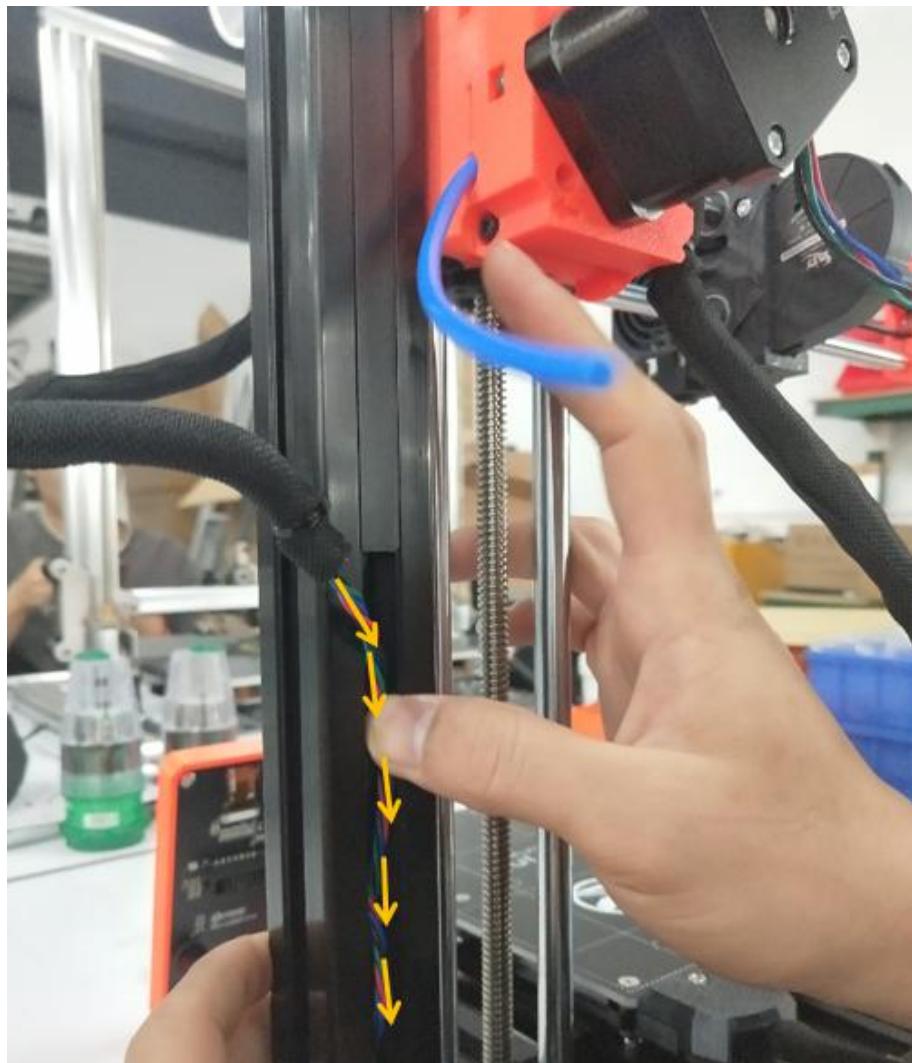


Figure 4.2.6

**Step 4-2-7:** As shown in Figure 4.2.7, insert another profile cover into the profile groove and wrap the X-axis and Y-axis motor'cables.

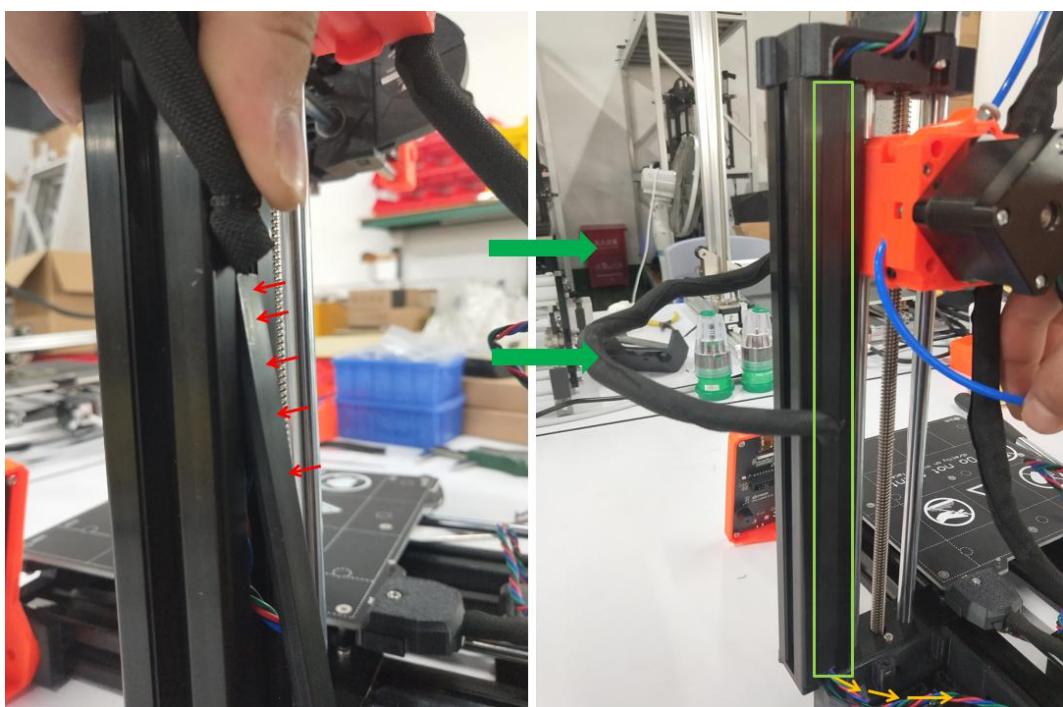


Figure 4.2.7

**Step 4-2-8:** As shown in Figure 4.2.8, the extruder heating rod cable is inserted into the wire terminal.

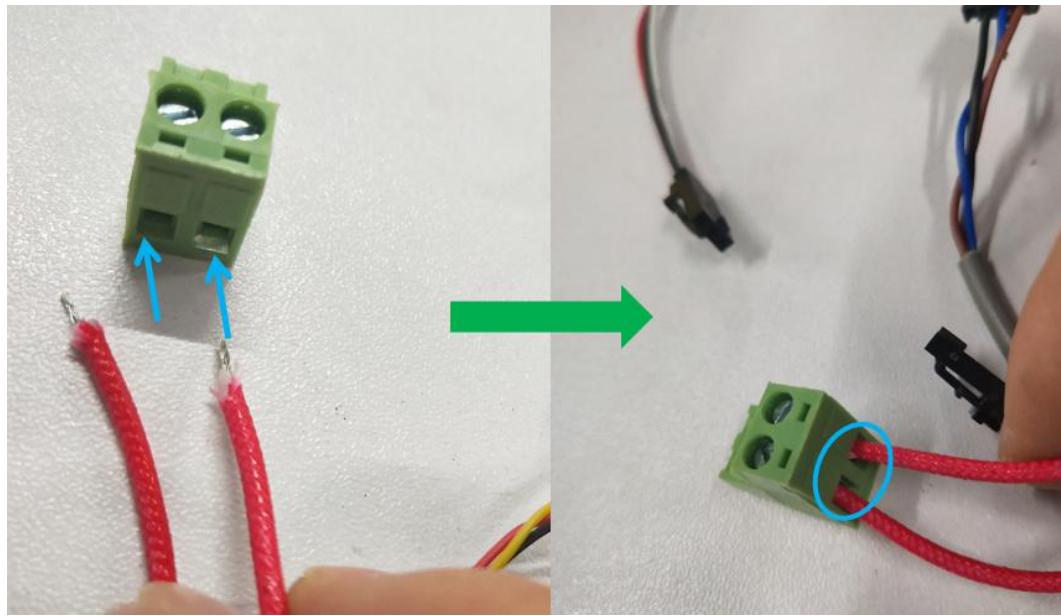


Figure 4.2.8

**Step 4-2-9:** Insert the cables of the existing X-axis module and Z-axis module into the corresponding ports on the motherboard as shown in Figure 4.2.9.

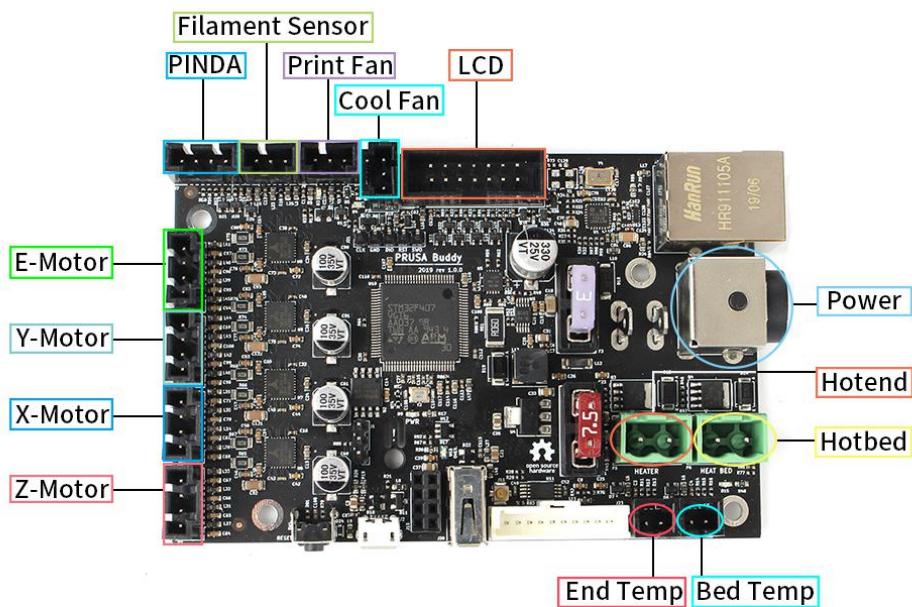


Figure 4.2.9

**Step 4-2-10:** As shown in Figure 4.2.10, after connecting the cable, check whether the cable is connected firmly and prepare for the next installation.



Figure 4.2.10

### (3) Assembly of the filament sensor

**Step 4-3-1:** As shown in Figure 4.3.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

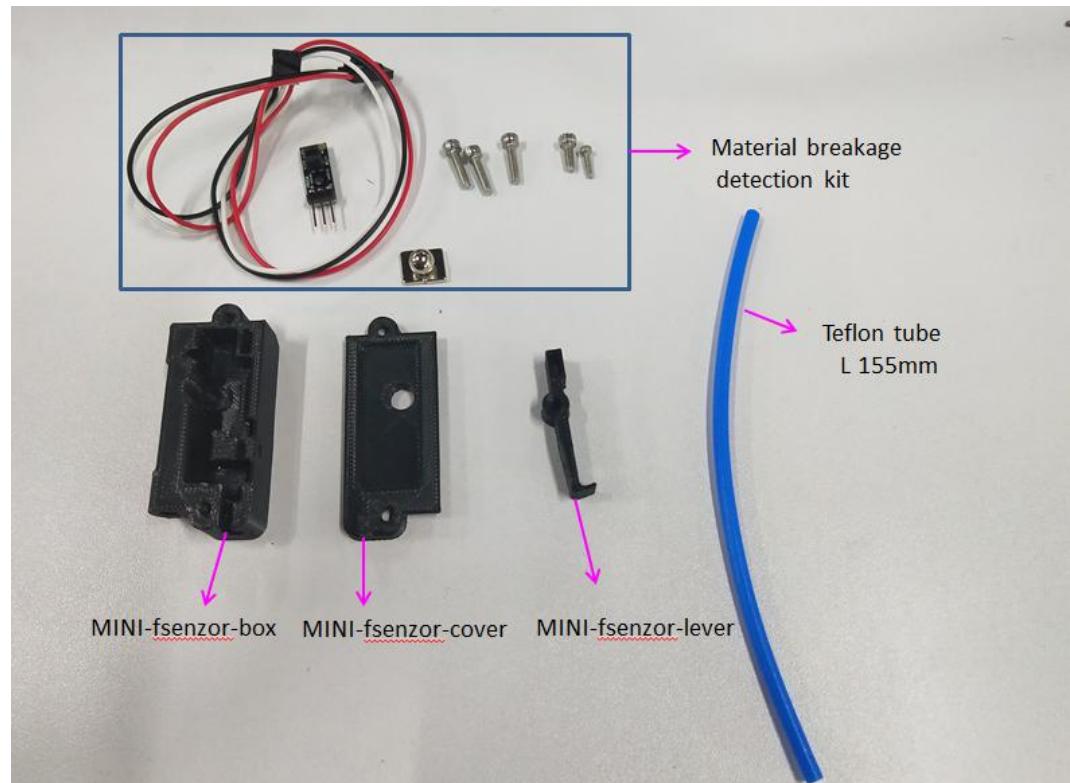


Figure 4.3.1

**Step 4-3-2: As shown in Figure**

A: As shown in Figure 4.3.2, install the ball into the hole on the MINI-fsenzor-box printout.

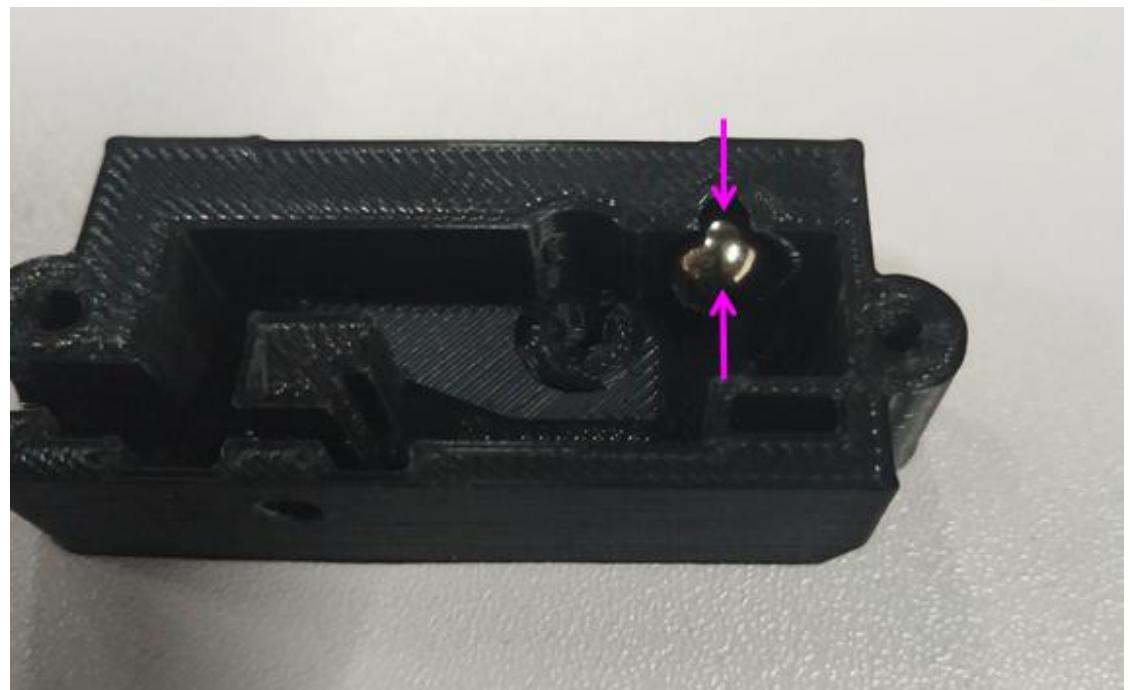


Figure 4.3.2

B: As shown in Figure 4.3.3, install the MINI-fsenzor-lever print in the MINI-fsenzor-box.

C: As shown in Figure 4.3.4, lock it with a M3 × 12 cylindrical head bolt. After locking, ensure that the MINI-fsenzor-lever can rotate smoothly from left to right (**note that the screw cannot be screwed to the bottom, and the bottom end of the screw There should be a distance of 1mm from MINI-fsenzor-lever, see the next step**)

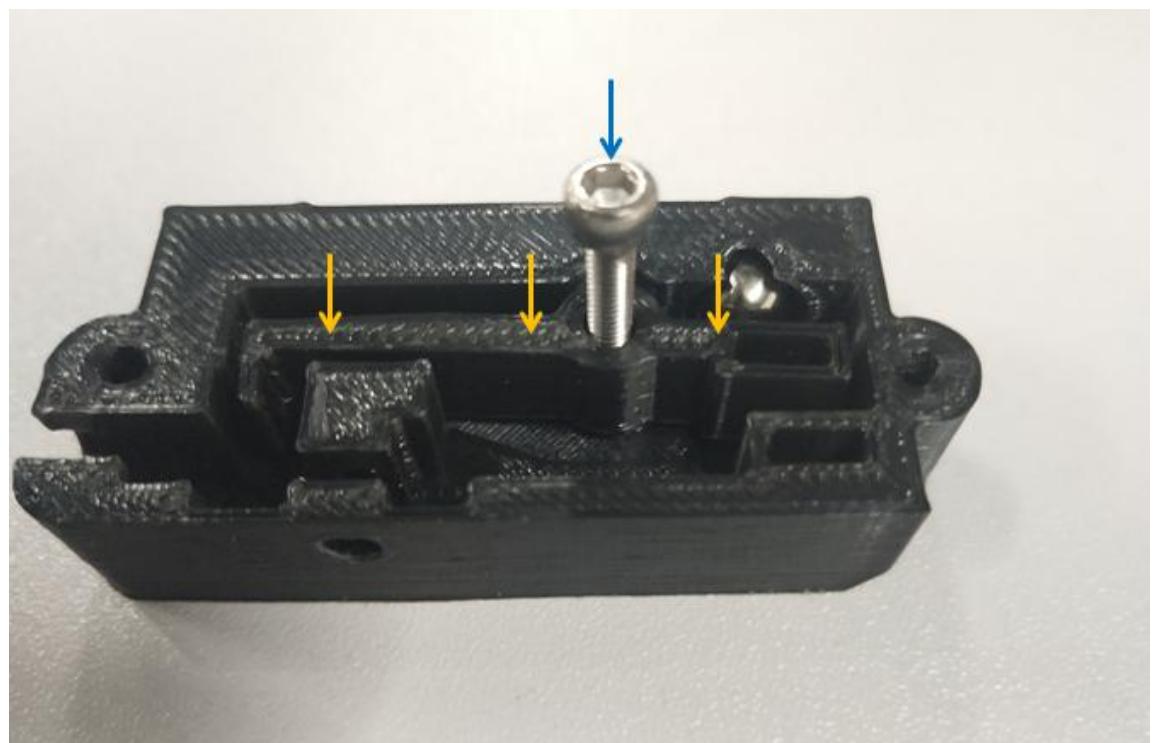


Figure 4.3.3

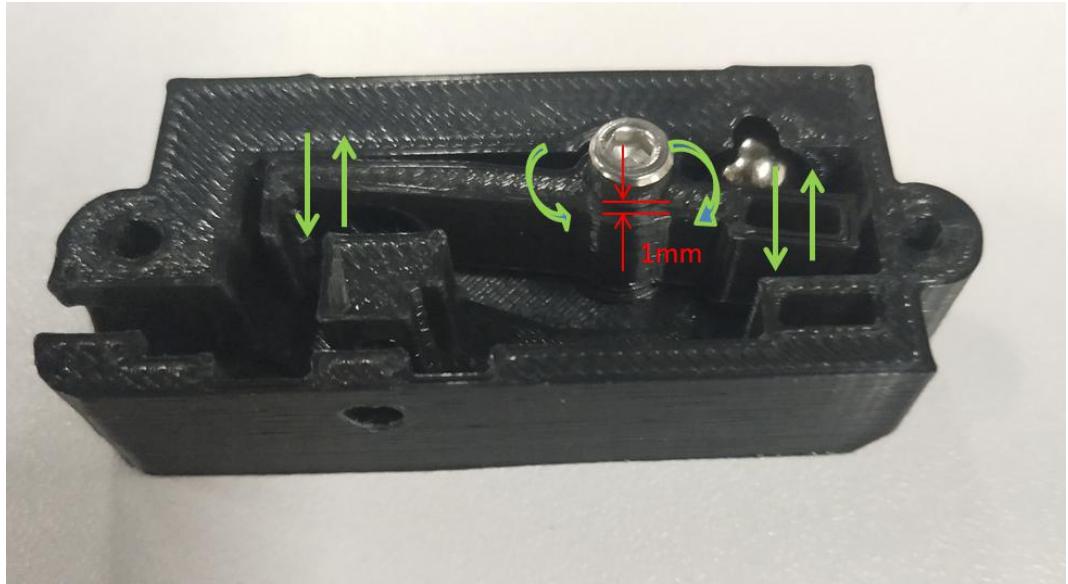


Figure 4.3.4

**Step 4-3-3:** As shown in Figure

A: As shown in Figure 4.3.5, install the two magnets in the MINI-senzor-lever and MINI-senzor-box, and the magnet force is required to repel each other.

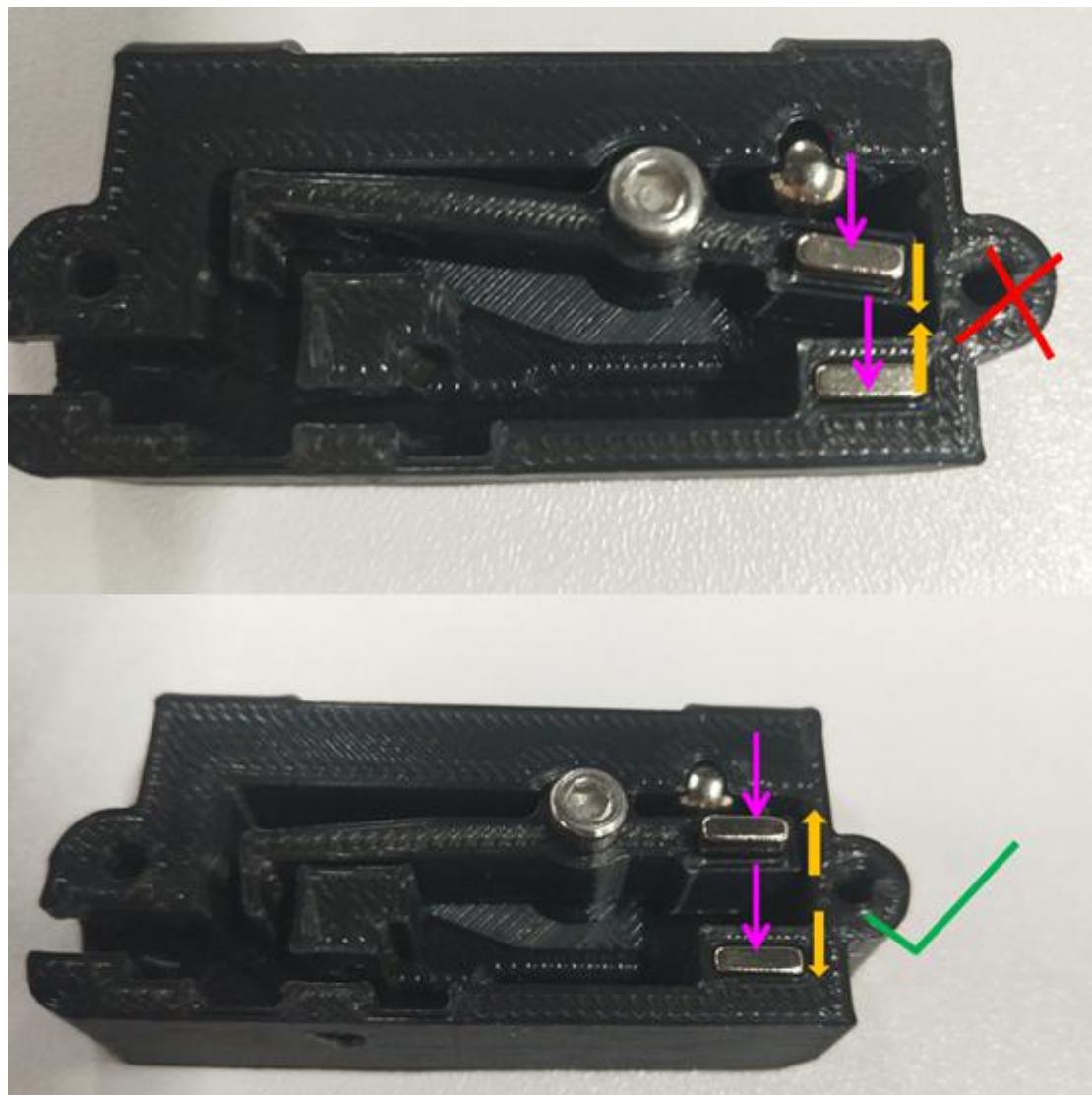


Figure 4.3.5

**Step 4-3-4:** As shown in Figure

A: As shown in Figure 4.3.6, connect the cable to the sensor switch, and install the cable-connected sensor switch into the MINI-fsenzor-box, as shown in Figure 4.3.7. (Note that there are three shelters slots in the MINI-fsenzor-box to avoid the three rows of solder caps on the induction switch)



Figure 4.3.6

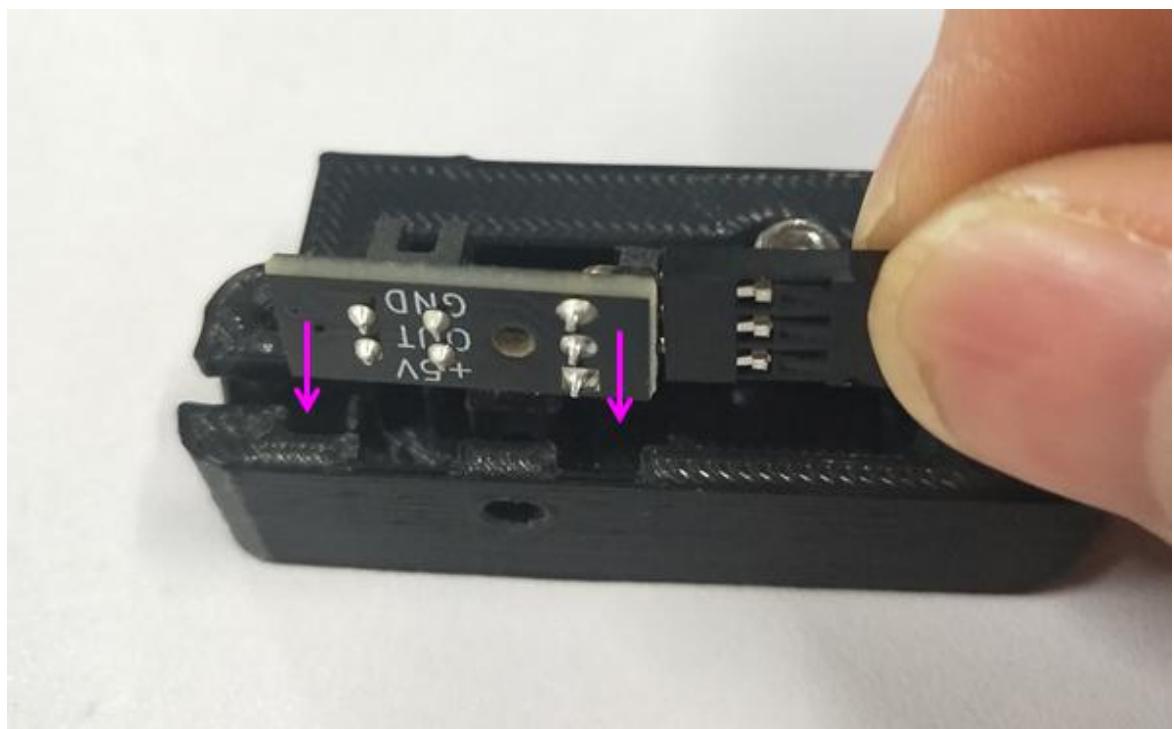


Figure 4.3.7

B: Fold up the sensor switch cable as shown in Figure 4.3.8.

C: As shown in Figure 4.3.8, following the previous step, fold the cable in the reverse direction and pass through the notch of the MINI-fsenzor-box.

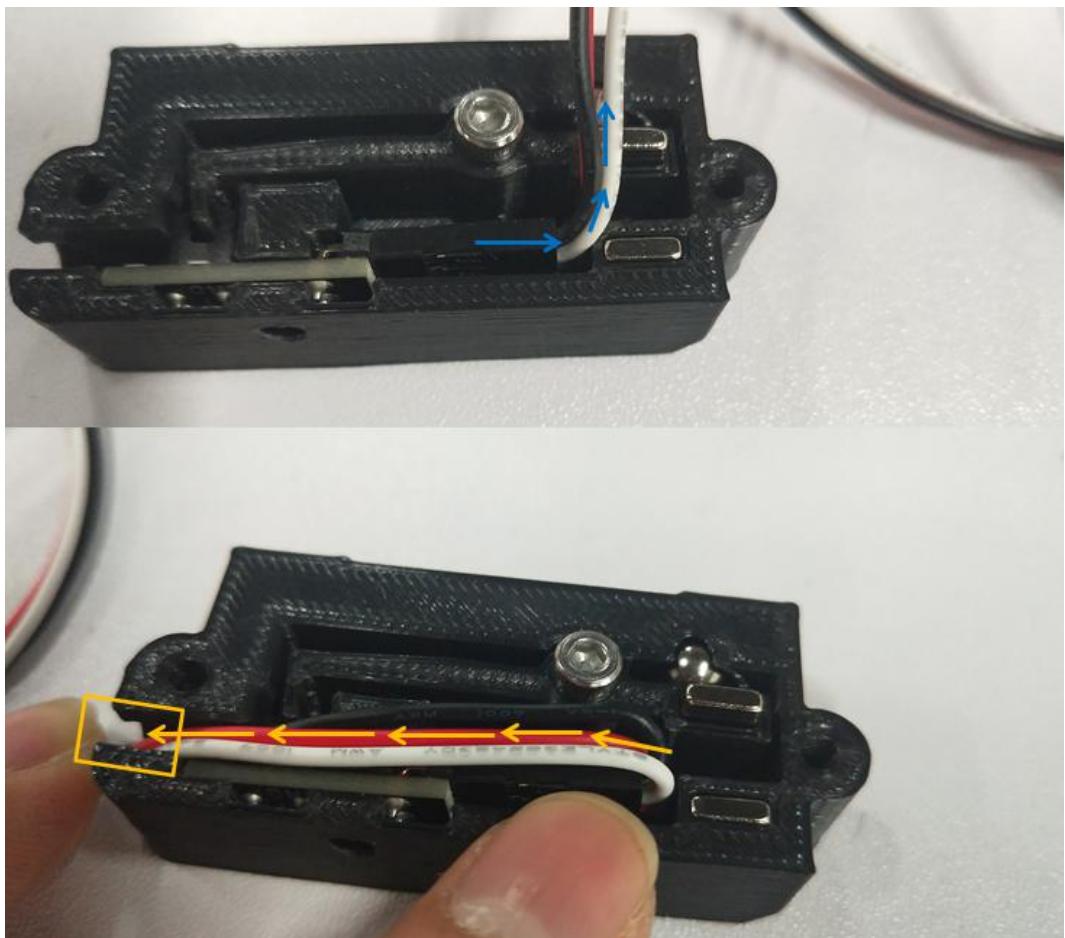


Figure 4.3.8

D: As shown in Figure 4.3.9, lock the sensor switch and MINI-fsenzor-box with a M2 × 8 cylindrical head bolt.

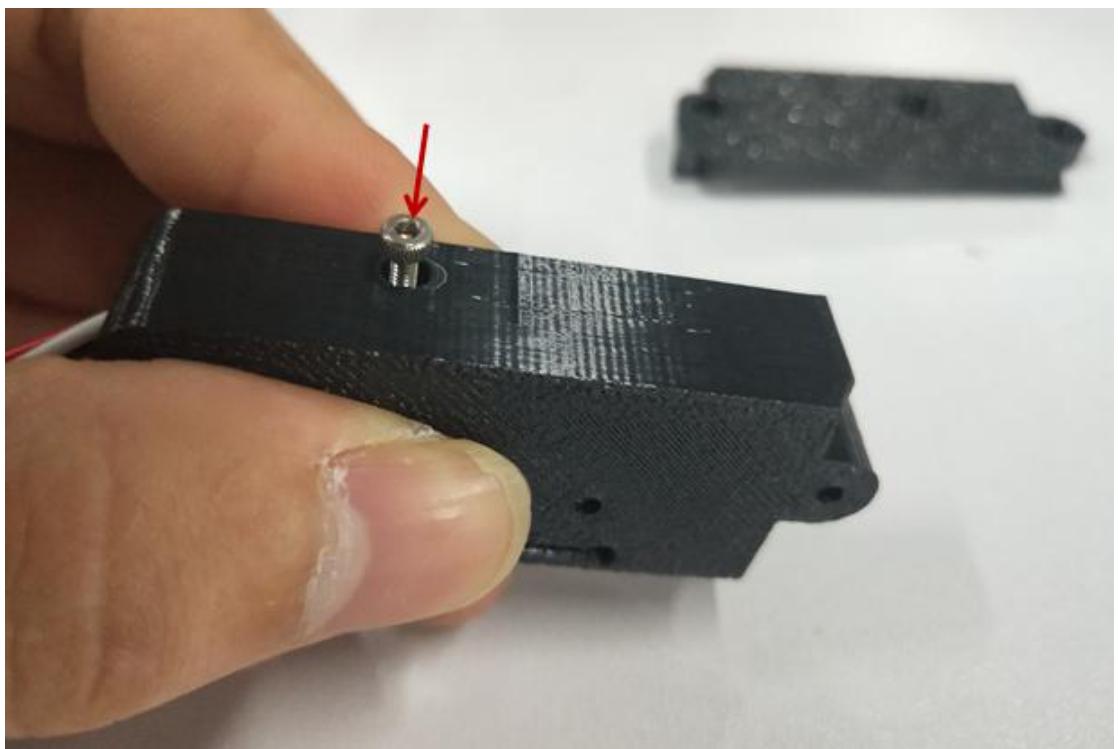


Figure 4.3.9

**Step 4-3-5:** As shown in Figure

A: Put MINI-senzor-cover on MINI-senzor-box as shown in Figure 4.3.10.

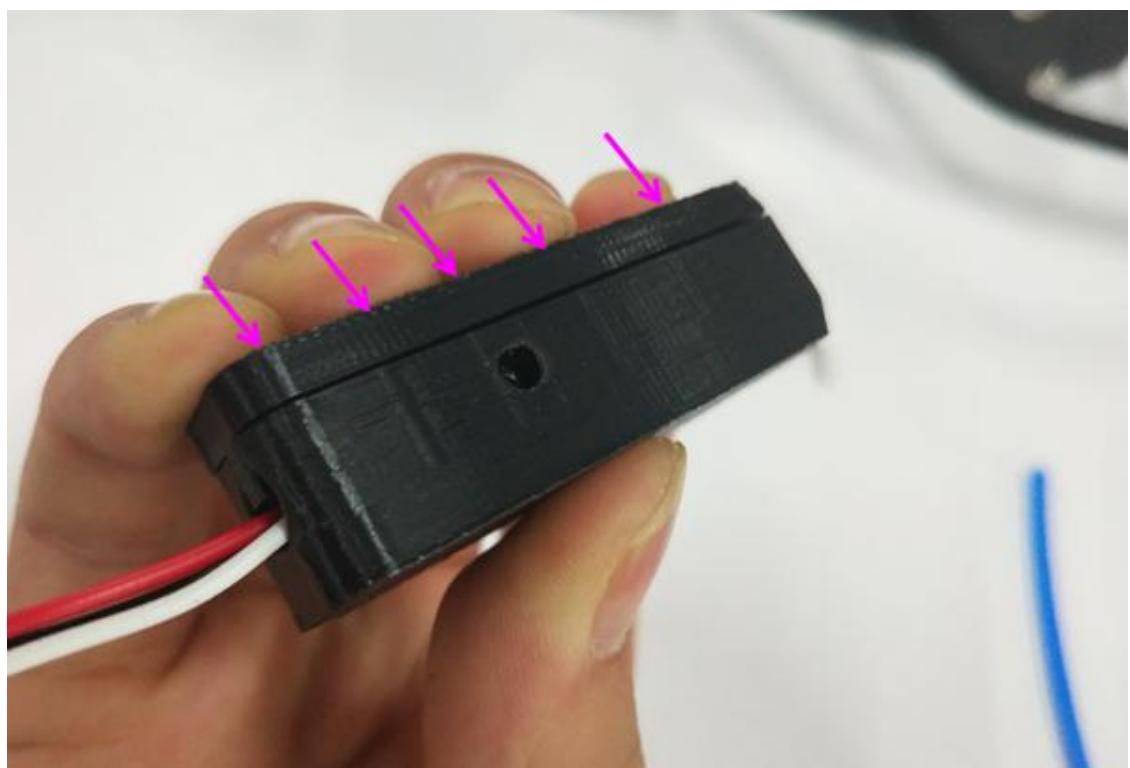


Figure 4.3.10

B: As shown in Figure 4.3.11, use 2pcs M3 × 12 cylindrical head bolts to lock the MINI-senzor-cover.

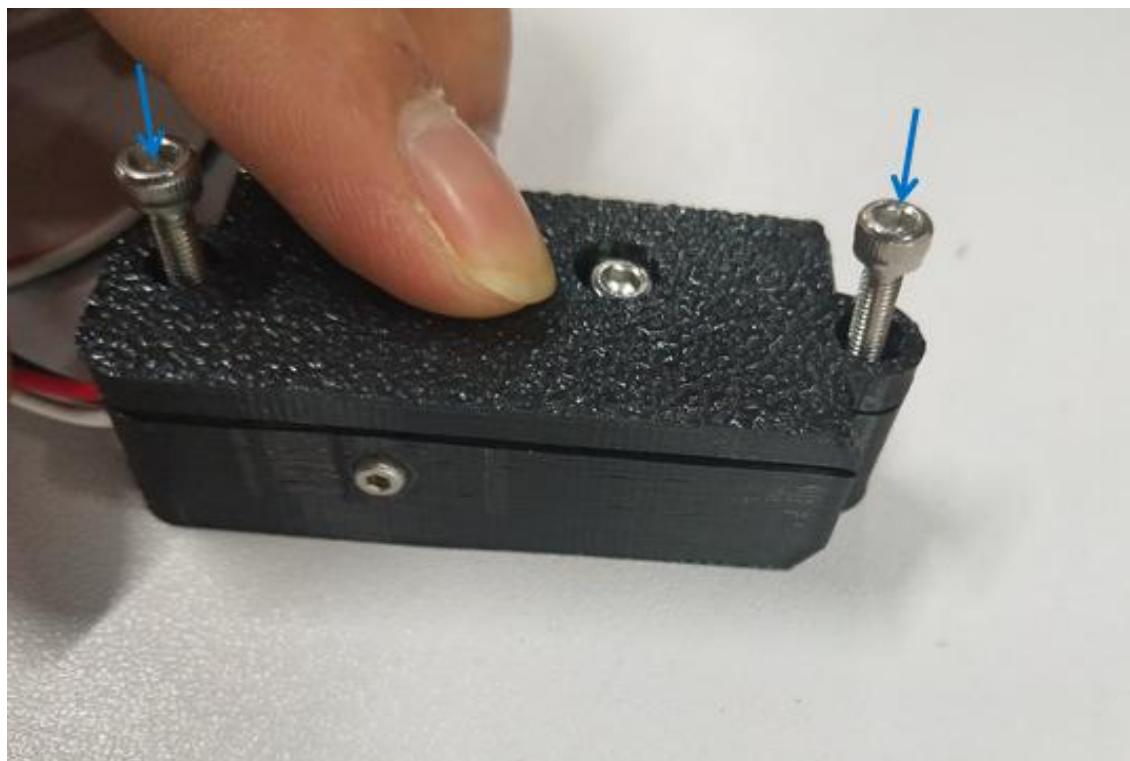


Figure 4.3.11

**Step 4-3-6:** As shown in Figure

A: As shown in Figure 4.3.12, insert the Teflon tube into the hole on the MINI-fsenzor-box to the bottom.

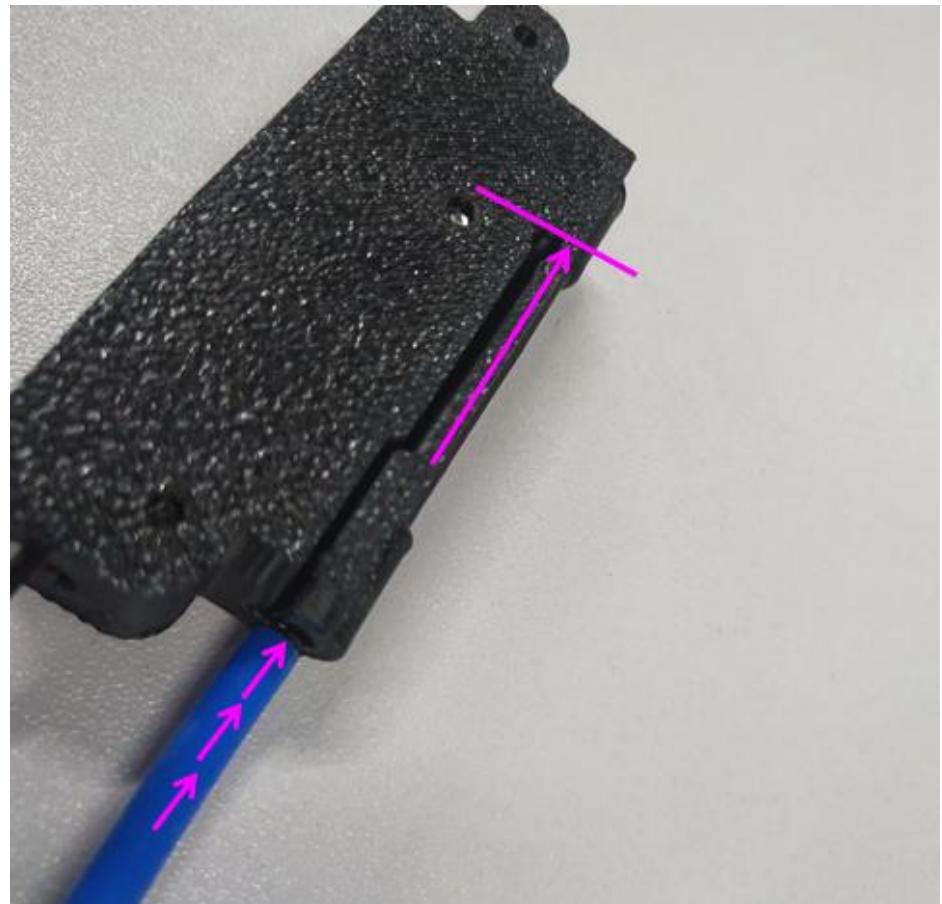


Figure 4.3.12

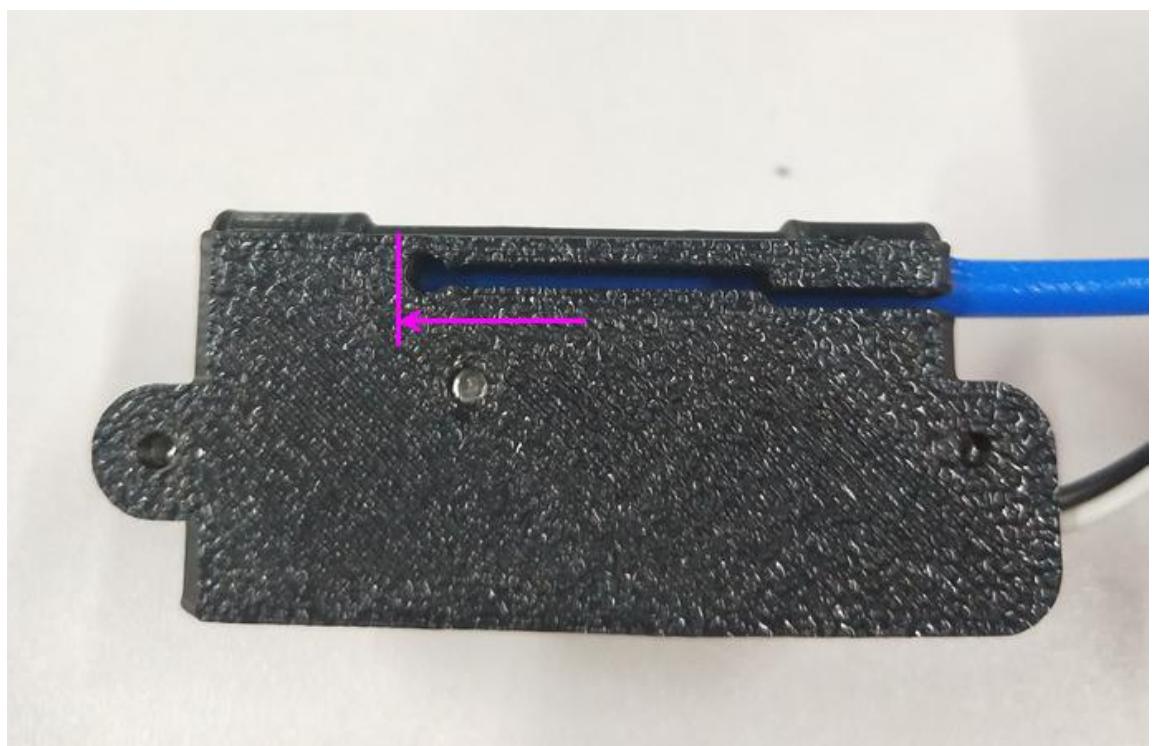


Figure 4.3.13

B: As shown in Figure 4.3.14, use a M3 × 8 cylinder head bolt to lock into the MINI-fsenzor-box, and press the inserted Teflon tube tightly.

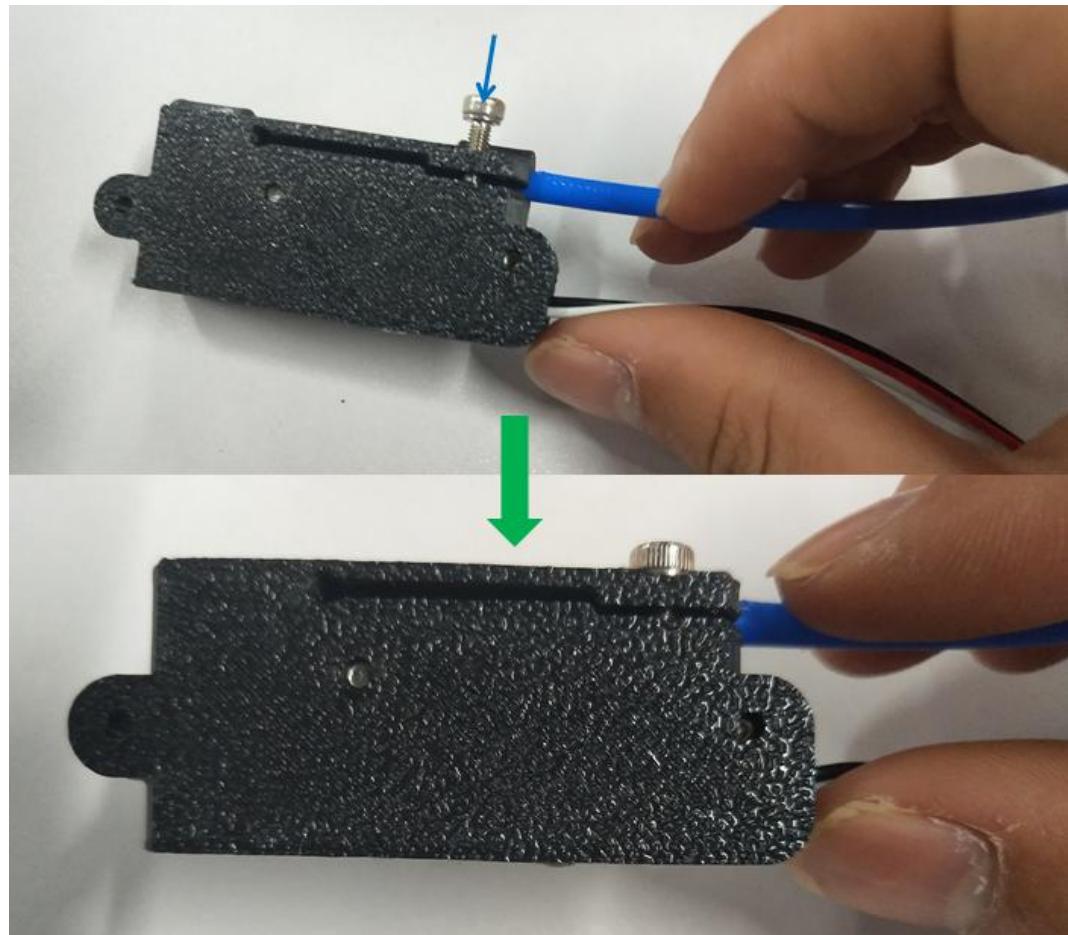


Figure 4.3.14

**Step 4-3-7:** After completing the assembly process, check whether the installation direction is correct and the bolts are tightened.

## 5. MINI machine assembly

### (1) Machine assembly

**Step 5-1-1:** As shown in Figure 5.1.1, prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

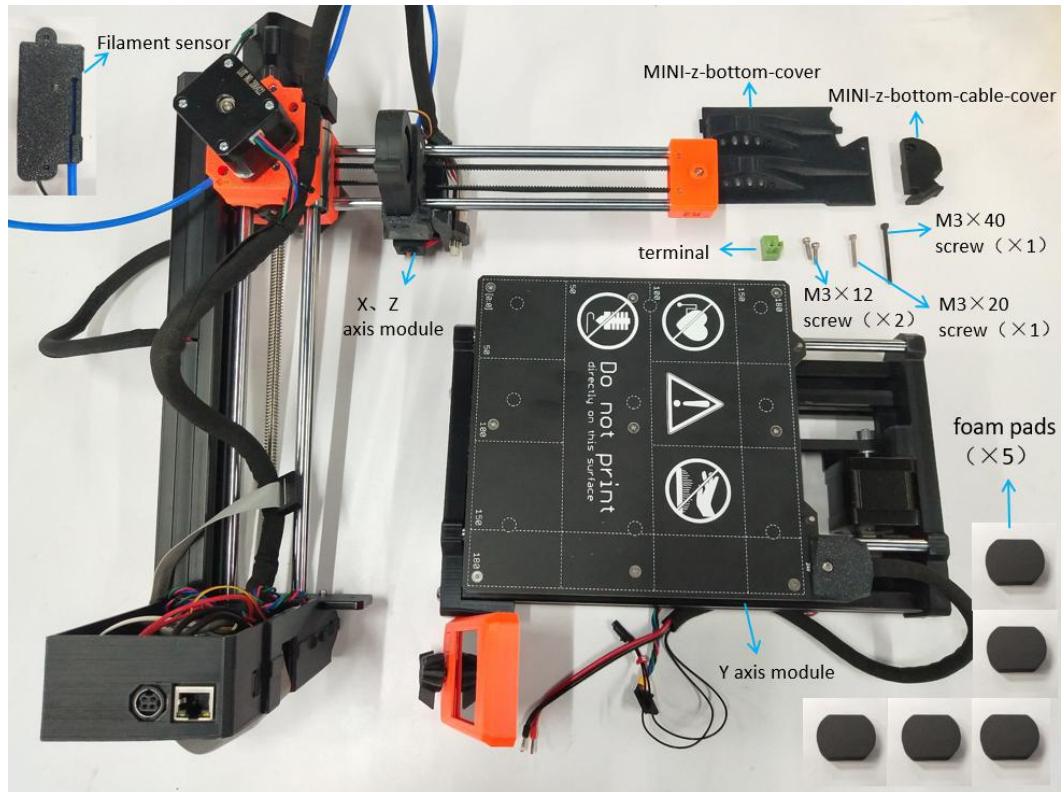


Figure 5.1.1

**Step 5-1-2:** as shown below

**A:** Remove the tape of the foam pad as shown in Figure 5.1.2.

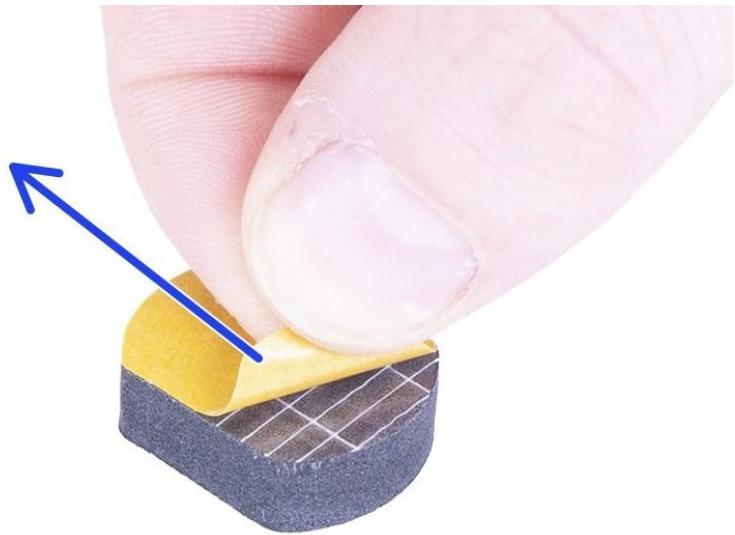


Figure 5.1.2

**B:** As shown in Figure 5.1.3. Attach a foam pad to the notch of the MINI-z-bottom.

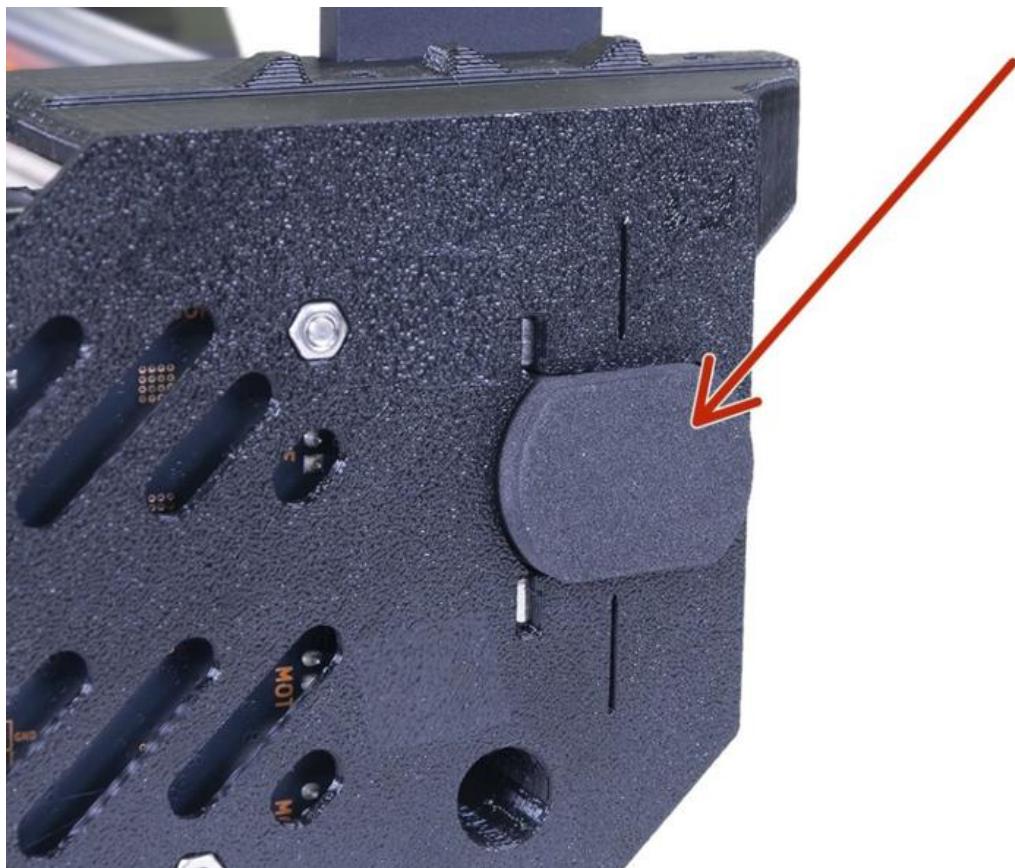


Figure 5.1.3

**C:** Install four foam pads on the four corners of the Y-axis module base as shown in Figure 5.1.4.

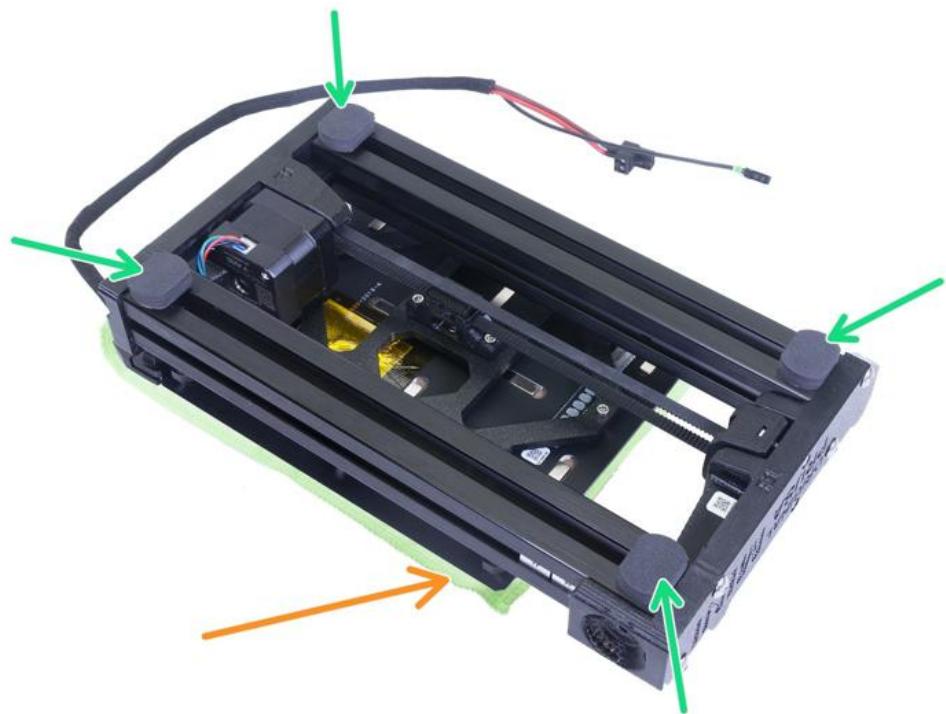


Figure 5.1.4

D: As shown in Figure 5.1.5. Bypass the display cable around the MINI-z-bottom.

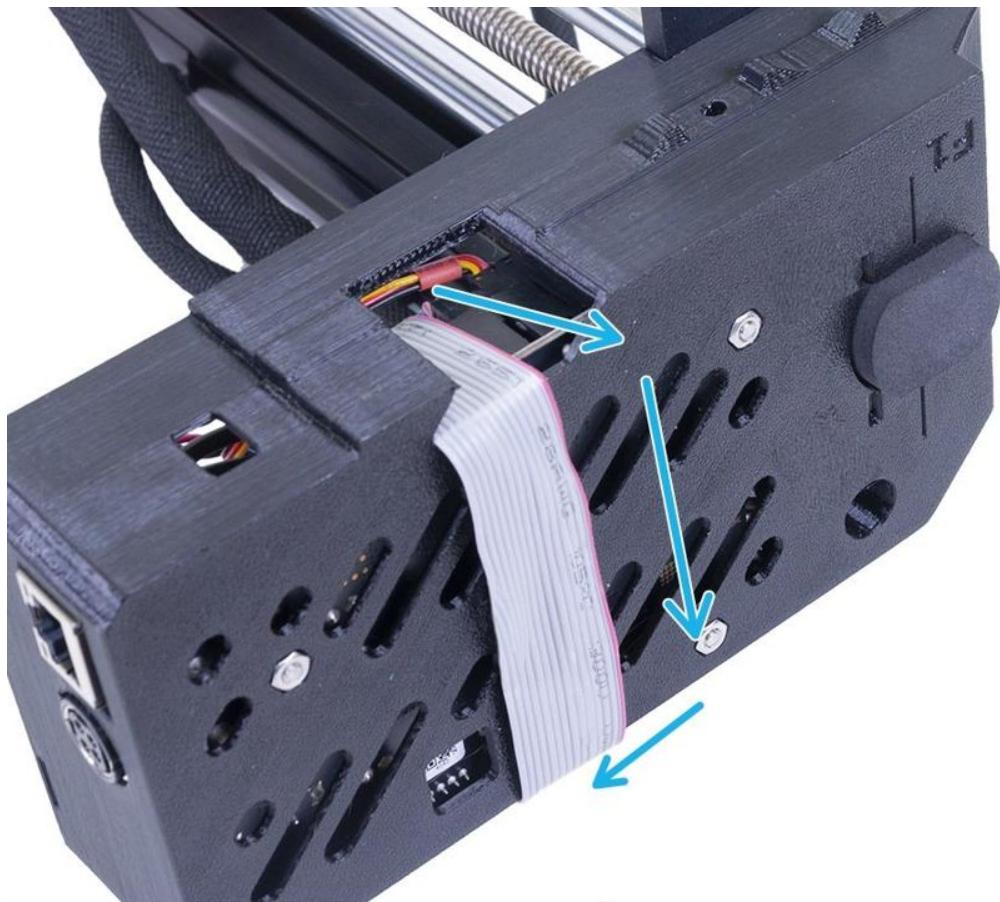


Figure 5.1.5

E: As shown in Figure 5.1.6. Arrange the display cables according to the figure.

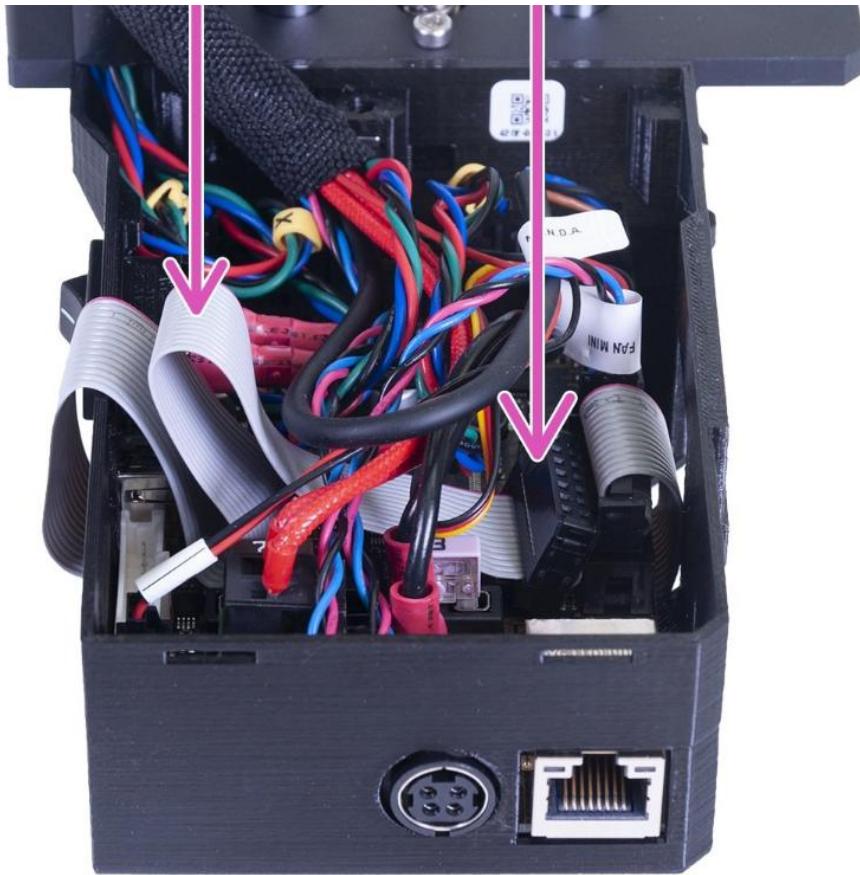


Figure 5.1.6

**Step 5-1-3:** Refer to Figure 5.1.7 and Figure 5.1.8.

**IMPORTANT:** Read the following lines carefully. You need to align all three silver M3nE nuts in the Y-axis assembly with the correct counterpart holes in the XZ-axis assembly!

**A:** **The first** (the longest) on the right will be used to connect both parts together using the M3x40 screw.



Figure 5.1.7

**B:** **The second** (the second longest) will be also used to join parts, but using the M3x20 screw.

**C:** **The third** is located in the top part of the extrusion (not visible in the picture).

The instructions on this one will be provided later on.

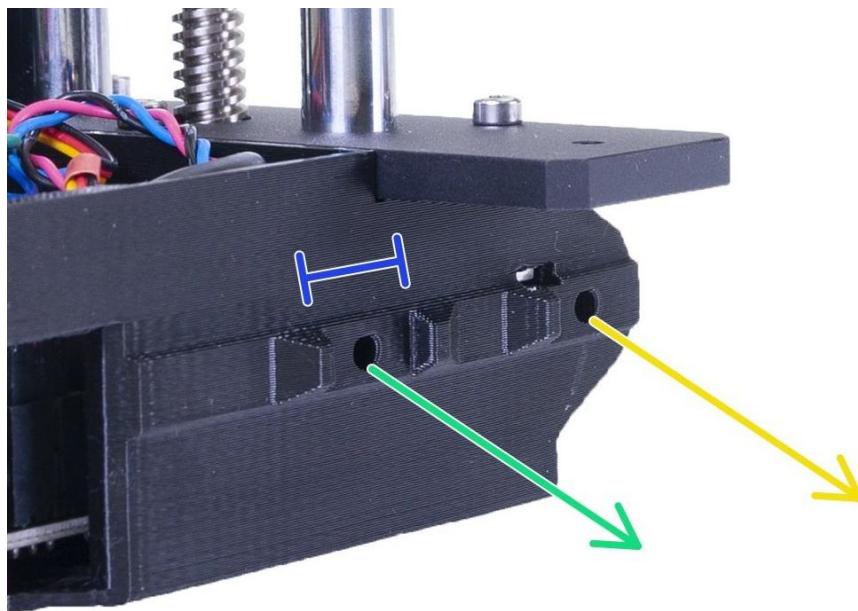


Figure 5.1.8

The second photo shows the inner side of the XZ assembly, which will be in the direct contact with aluminium extrusion and the silver M3nE nuts. Make sure the first nut fits inside the "clamp".

**Step 5-1-4:** As shown below.

**A:** As shown in Figure 5.1.9. Move the heatbed all the way to the right.

**B:** Place the right M3nE nut approximately in the middle of the extrusion length, but make sure it is not under the heatbed structure.



Figure 5.1.9

**C:** As shown in Figure 5.1.10. Push both parts together and try fitting the "clamp" (XZ assembly) directly on the M3nE nut, which you have moved to the centre of the extrusion.



Figure 5.1.10

**D:** As shown in Figure 5.1.11. Use the M3x40 screw to connect both parts. In case you can't reach the thread of the nut, wiggle with the screw a bit inside the plastic base of the printer. **DON'T tighten the screw fully yet!**

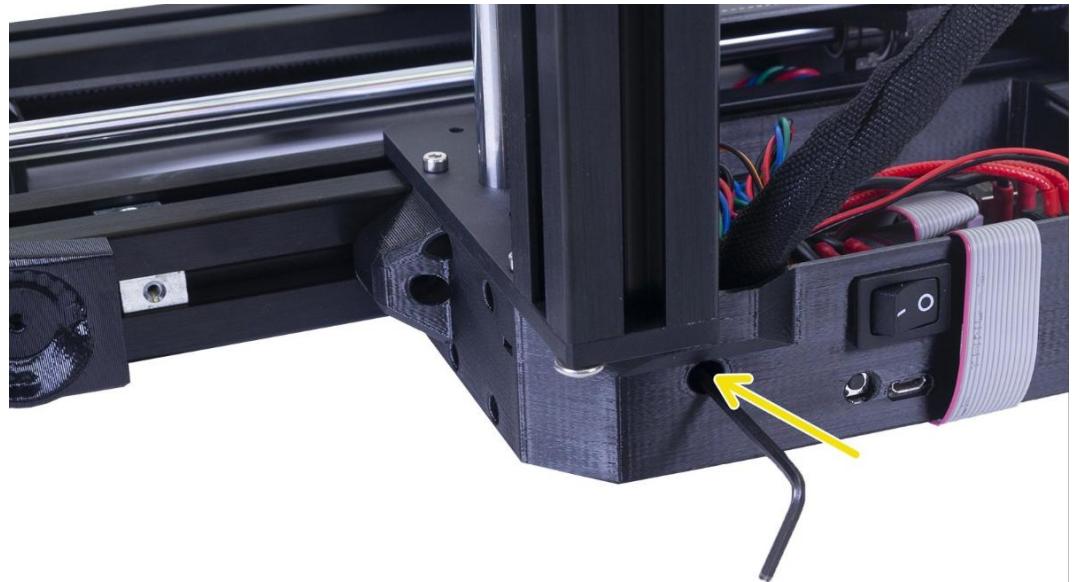


Figure 5.1.11

**Step 5-1-5:** As shown below.

**A:** As shown in Figure 5.1.12. Take the second M3nE nut from the left and move it all the way to the right, use the Allen key and gently push it in. There is a notch inside, which will align it properly for the second screw.

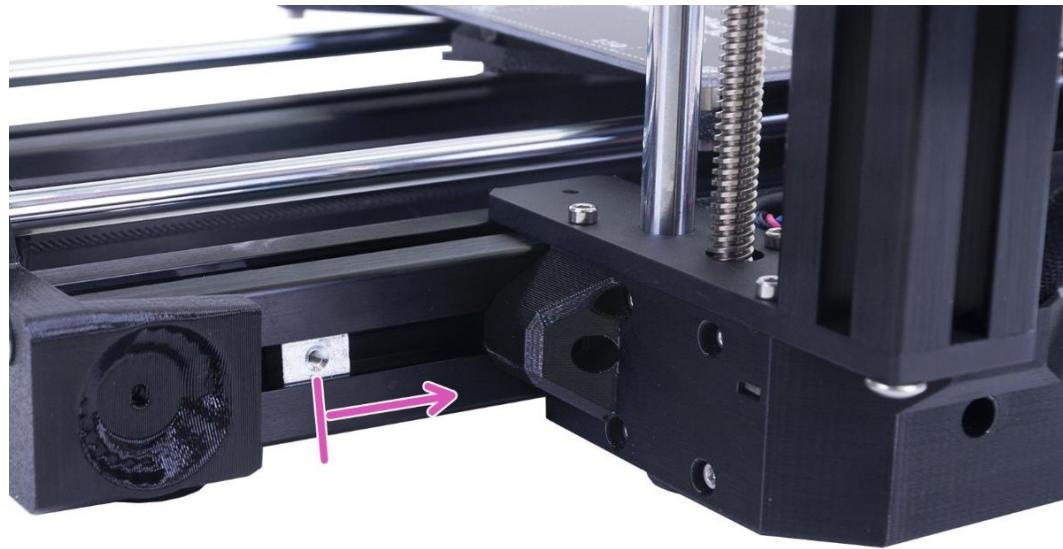


Figure 5.1.12

**B:** As shown in Figure 5.1.13. Use the M3x20 screw and again tighten it just slightly, but ensure you have reached the nut. **DON'T tighten the screw fully yet!**

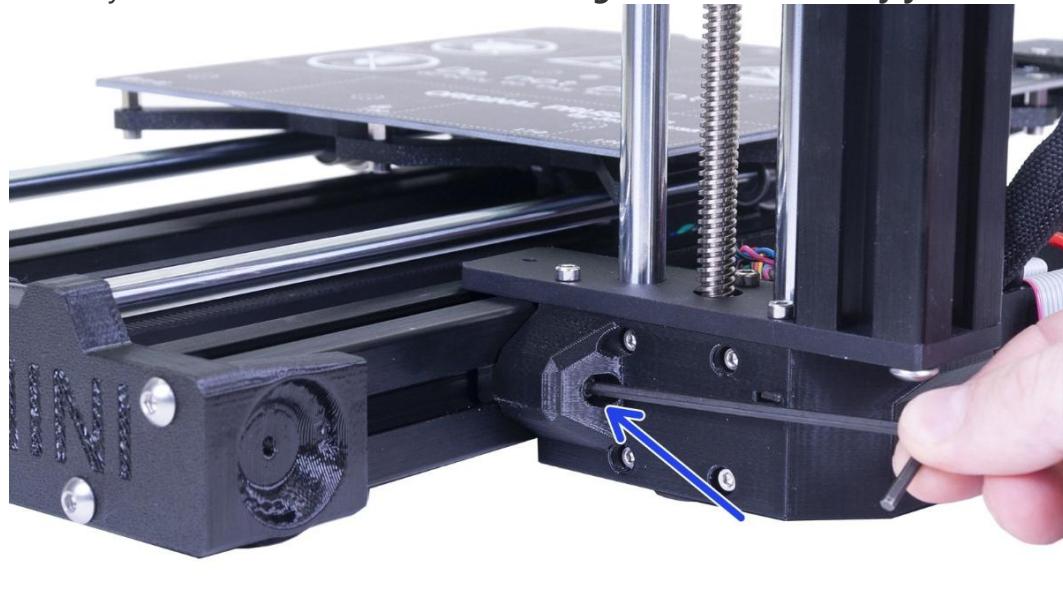


Figure 5.1.13

**Step 5-1-6:** As shown below.

- A:** As shown in Figure 5.1.14. Now, take the M3nE nut in the upper part of the extrusion and slide it under the steel plate.
- B:** As shown in Figure 5.1.14. Make sure the hole in the nut matches the hole in the plate. Use the Allen key to align it.

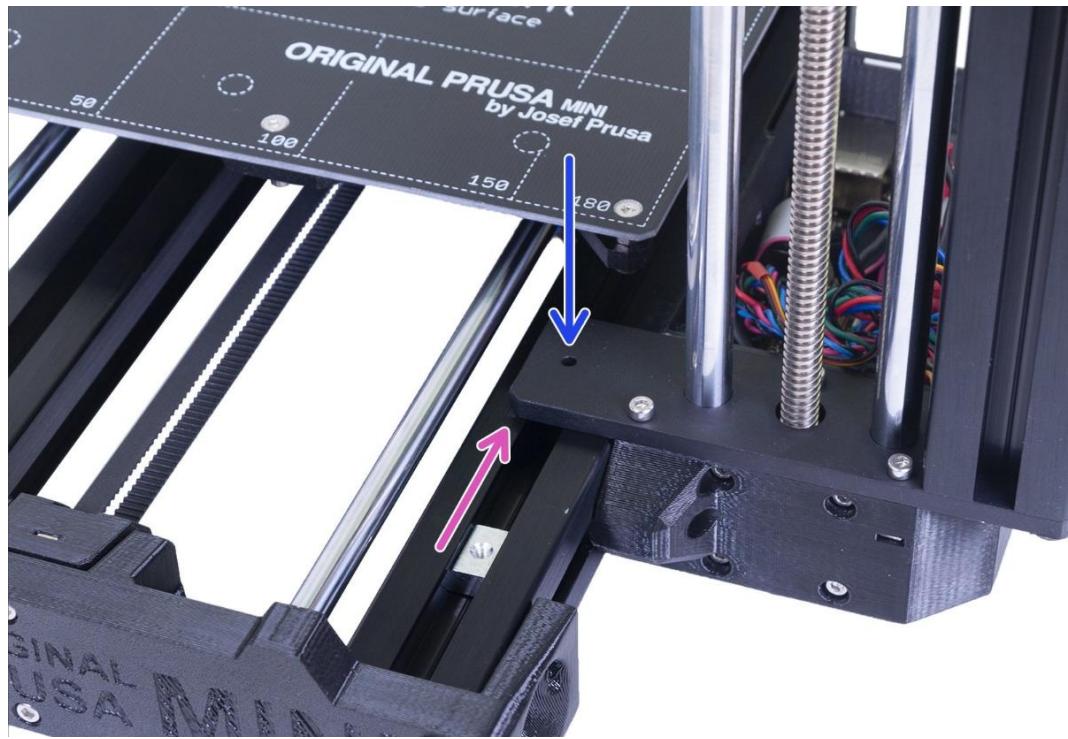


Figure 5.1.14

- C:** As shown in Figure 5.1.15. Fix both parts together using the M3x12 screw, tighten it slightly. **DON'T tighten the screw fully yet!**

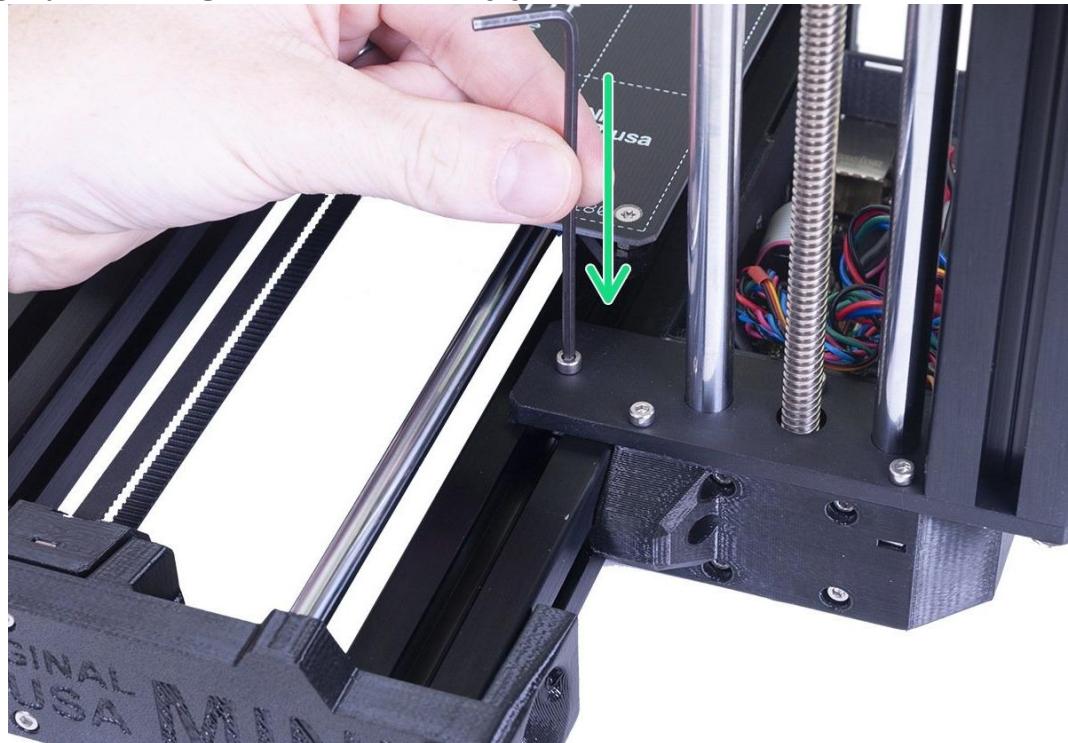


Figure 5.1.15

**Step 5-1-7:** As shown below.

In this step you will move the entire XZ axis, avoid pushing (grinding) it against the aluminium extrusion, or you might scratch it. Leave a small gap while moving the parts.

- A:** As shown in Figure 5.1.16. Rotate the back of the printer towards you and push the heatbed all the way to the "front".
- B:** As shown in Figure 5.1.16. Hold the Y-axis assembly.
- C:** As shown in Figure 5.1.16. Move the XZ-axis assembly to the back.

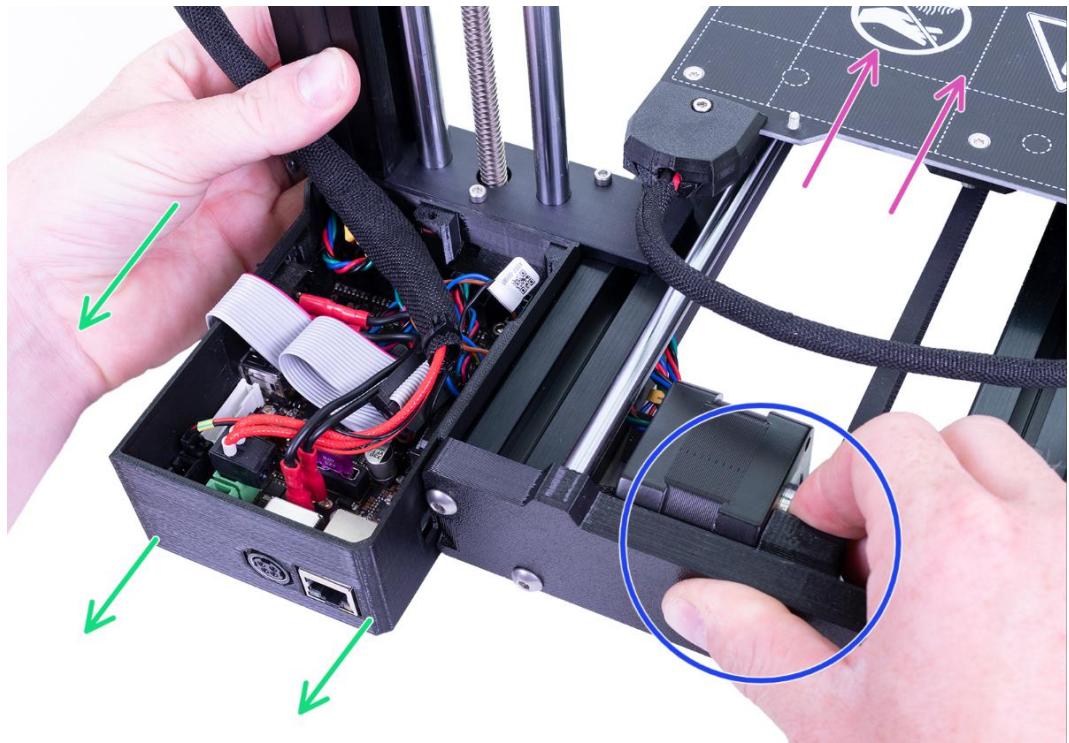


Figure 5.1.16

**D:** As shown in Figure 5.1.17. There is a notch, which indicates the correct mutual position of both parts.



Figure 5.1.17

**Step 5-1-8:** As shown below.

Once the parts are aligned, **tighten all screws** in this particular order:

**A:** As shown in Figure 5.1.18. The M3x12 screw at the top.

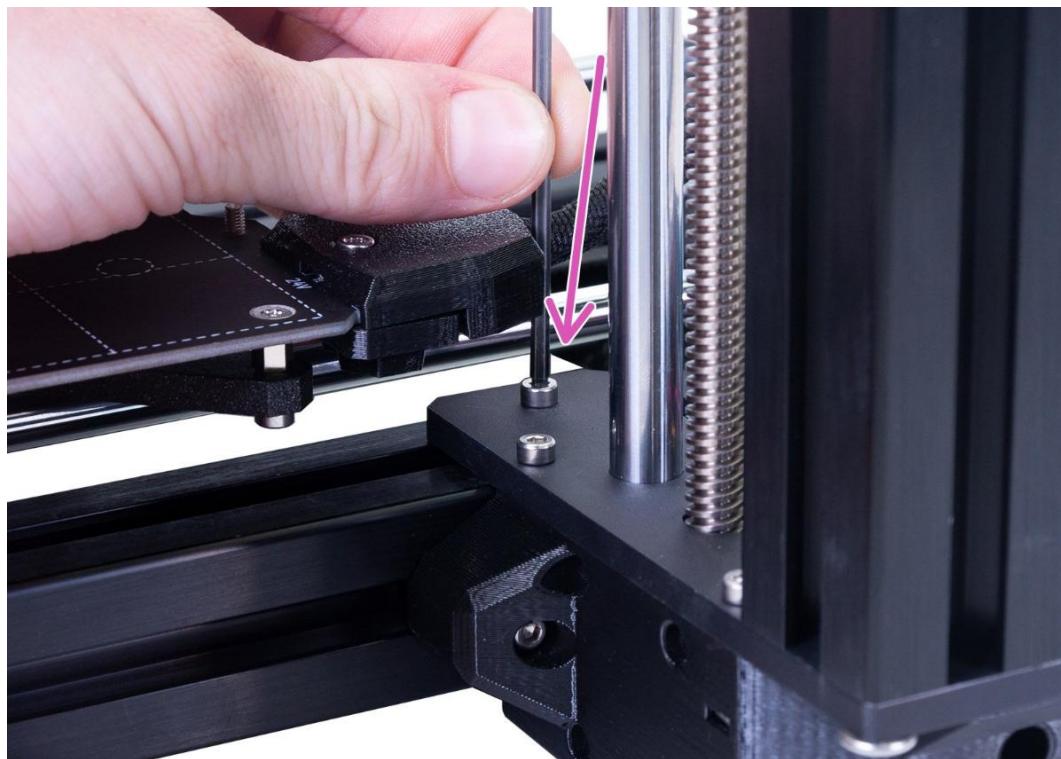


Figure 5.1.18

**B:** As shown in Figure 5.1.19. The M3x40 screw on the side.

**C:** As shown in Figure 5.1.19. The M3x20 screw on the side.

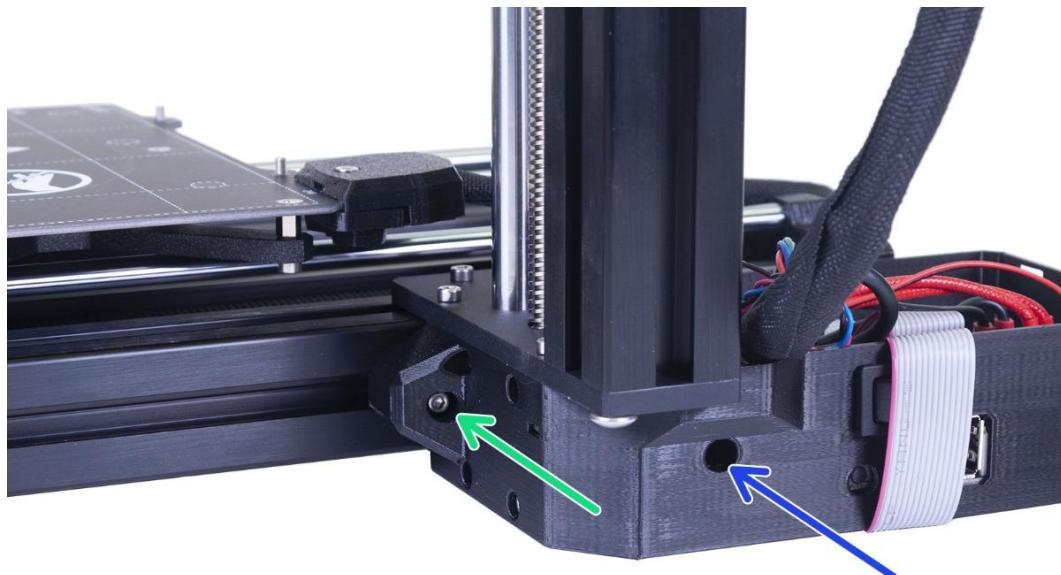


Figure 5.1.19

**Step 5-1-9:** As shown below.

**A:** As shown in Figure 5.1.20. Carefully tilt the printer on its side.

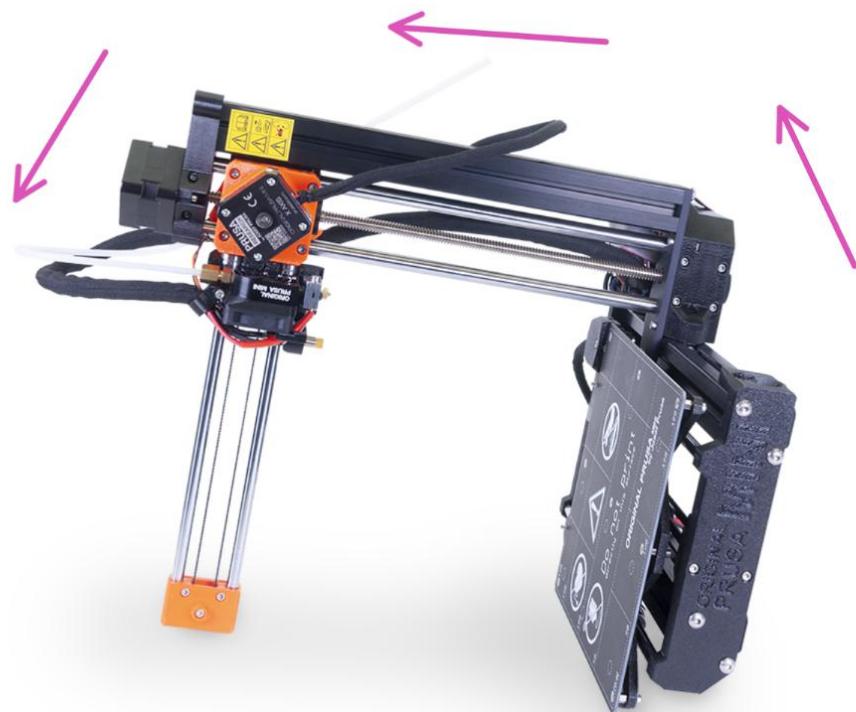


Figure 5.1.20

**B:** As shown in Figure 5.1.21. Place the LCD into the LCD holder. There is a notch, which fits inside the printed part on the printer.

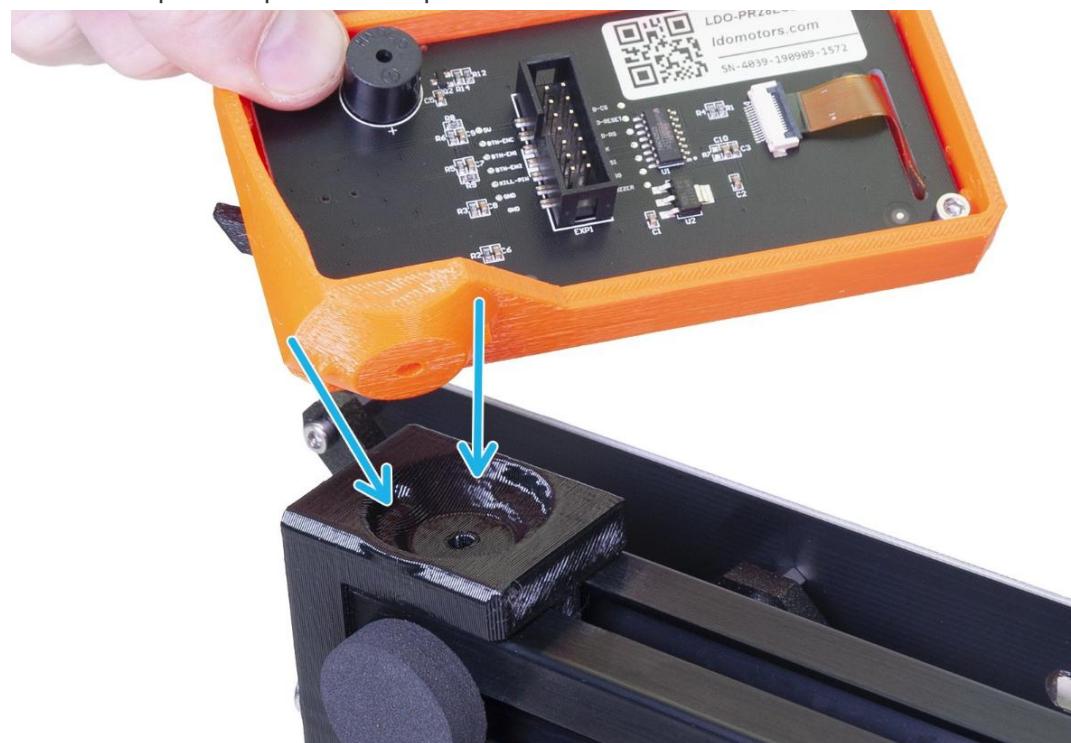


Figure 5.1.21

**C:** As shown in Figure 5.1.22. The design allows you to tilt the LCD into multiple positions. You can do it now or later.

**D:** As shown in Figure 5.1.22. Use the M3x12 screw to connect both parts together.



Figure 5.1.22

**Step 5-1-10:** As shown below.

**A:** As shown in Figure 5.1.23. Carefully remove the free end of the LCD cable from the box with the electronics and connect it to the board on the LCD. Mind the correct orientation of the connector. Use the notch as a guide.

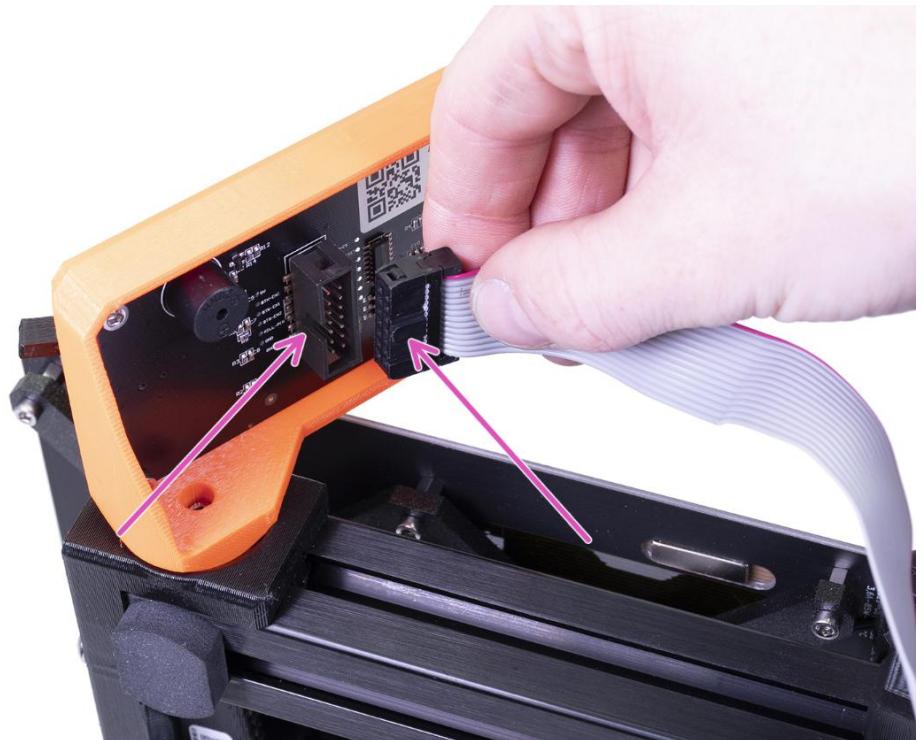


Figure 5.1.23

**B:** As shown in Figure 5.1.24. Insert the connector in the socket on the board. Make sure it is all the way in.

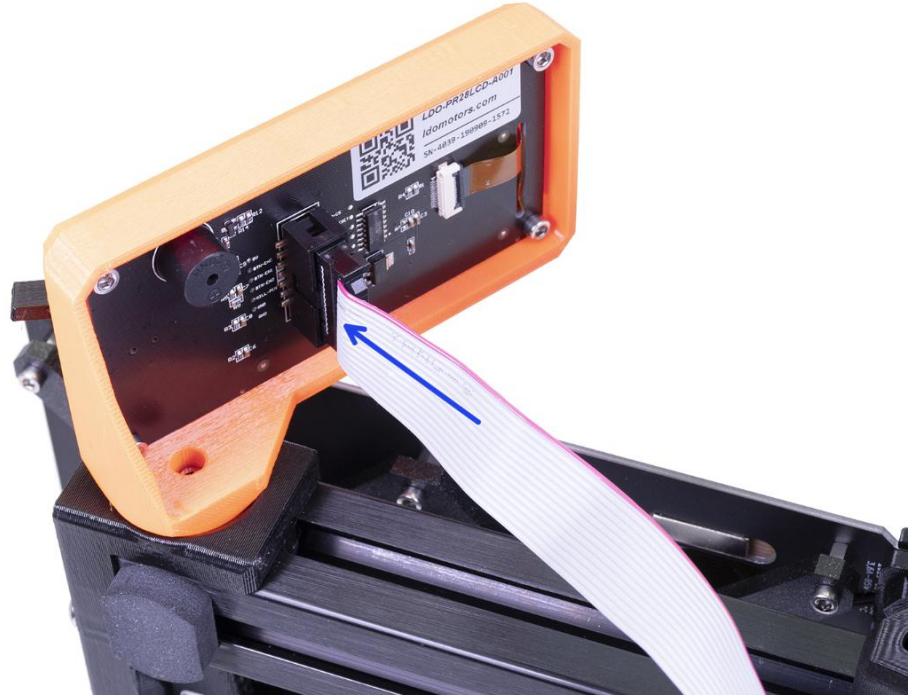


Figure 5.1.24

**C:** As shown in Figure 5.1.25. Gently insert the cable inside the extrusion. Leave some slack outside near the LCD, so you can tilt it later on.

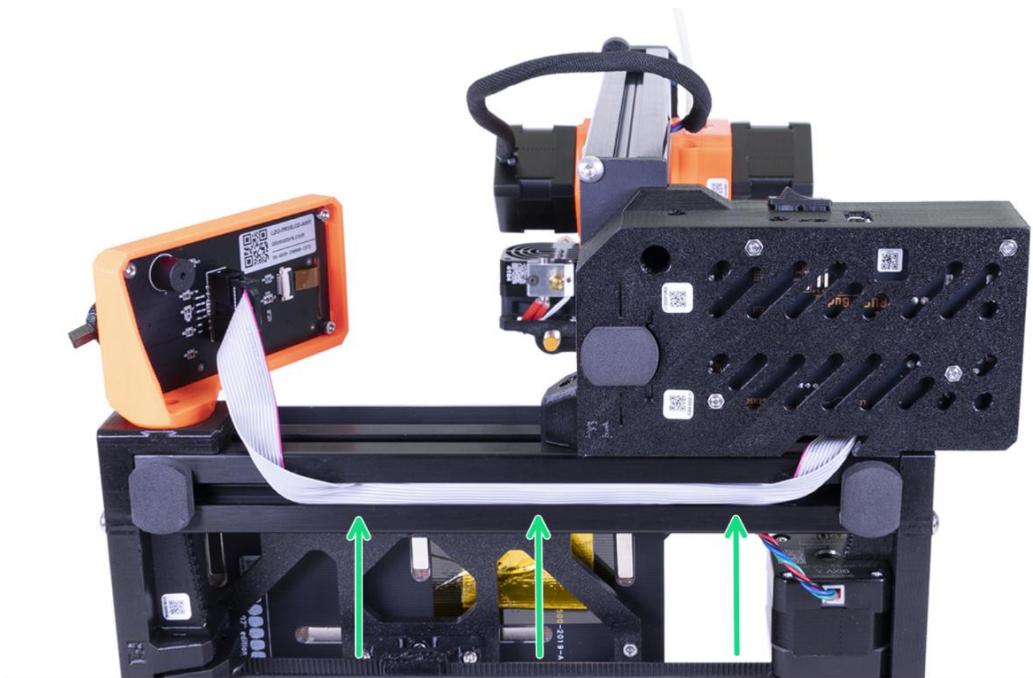


Figure 5.1.25

Pro tip: to insert the cable in the extrusion carefully bend it into two halves along its length.

**Step 5-1-11:** As shown below.

**A:** As shown in Figure 5.1.26. Take the motor cable (labelled Y) and push it through the

hole.

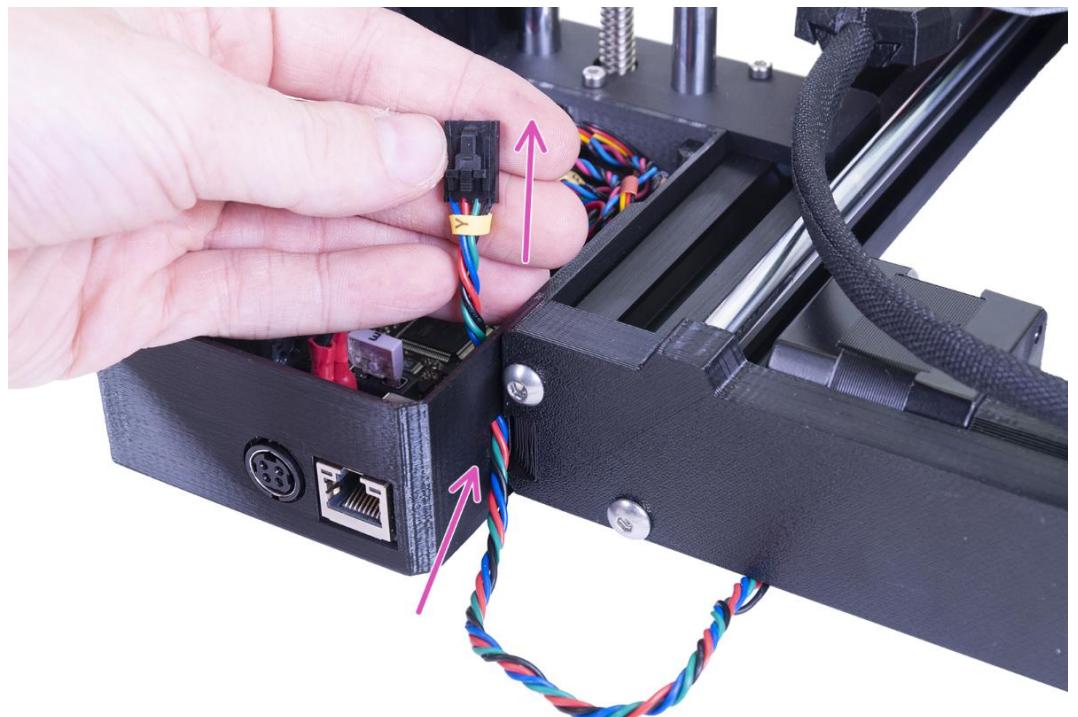


Figure 5.1.26

**B:** As shown in Figure 5.1.27. Connect the connector to the appropriate socket. See the picture for more detail.

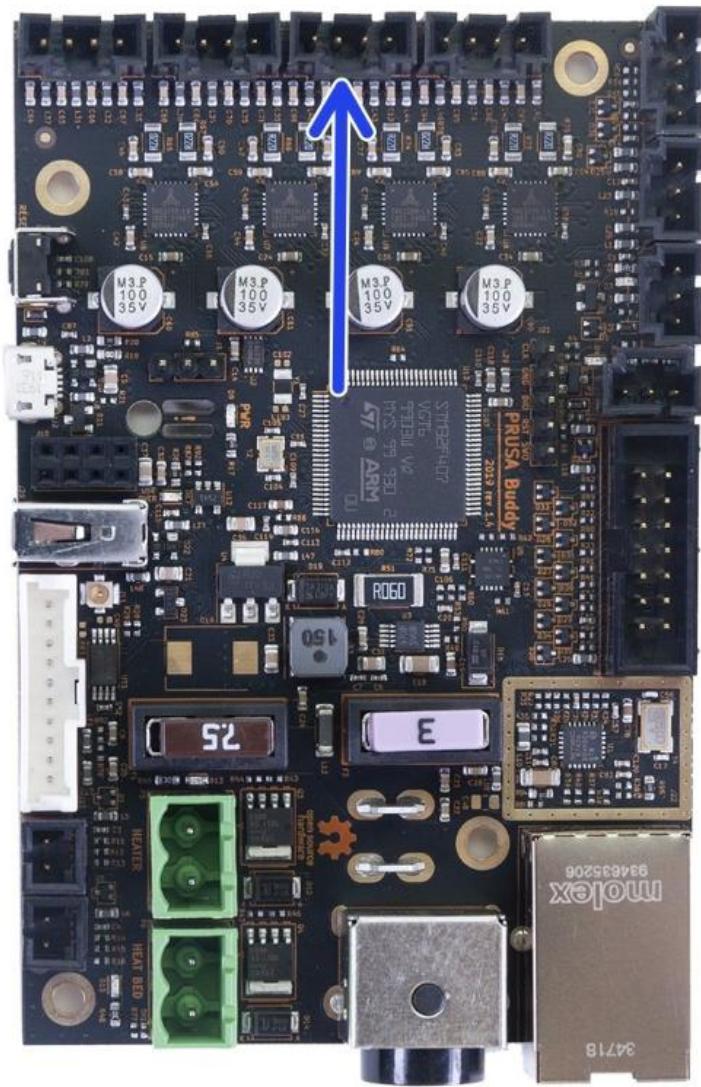


Figure 5.1.27

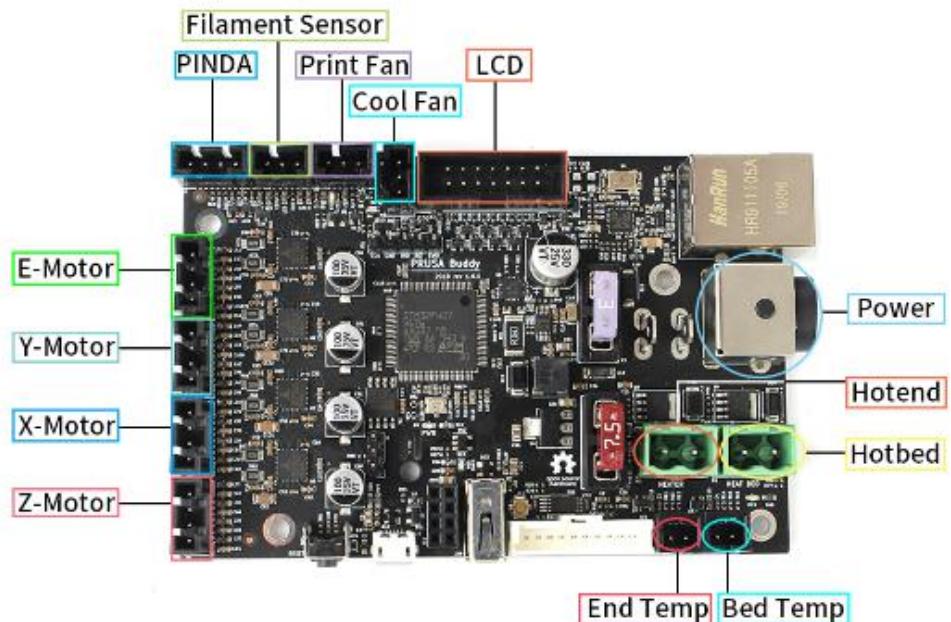


Figure 5.1.28

C: As shown in Figure 5.1.29. Arrange most of the cable's length on the right side of the

electronics box.

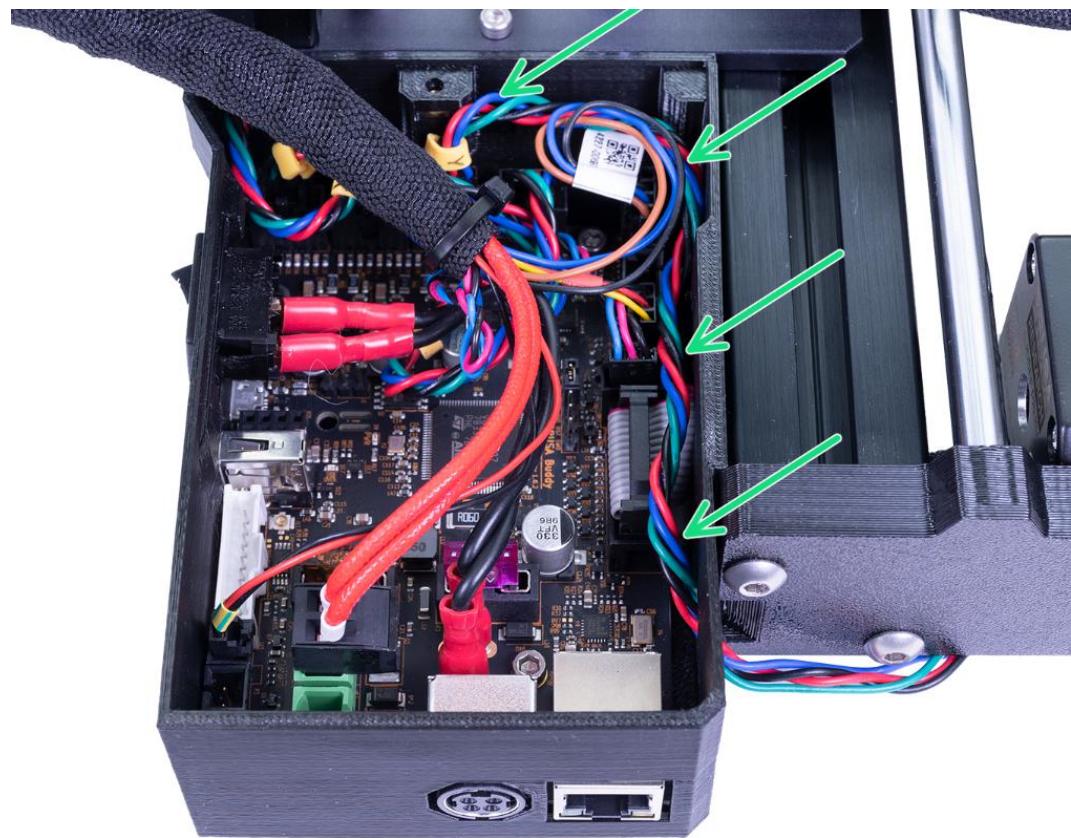


Figure 5.1.29

**Step 5-1-12:** As shown below.

Take the cable bundle from the heatbed and guide it into the box from the top, there is no dedicated hole. Connect the individual cables to the board:

- A: As shown in Figure 5.1.30. Thermistor (H).
- B: As shown in Figure 5.1.30. Heatbed heater.

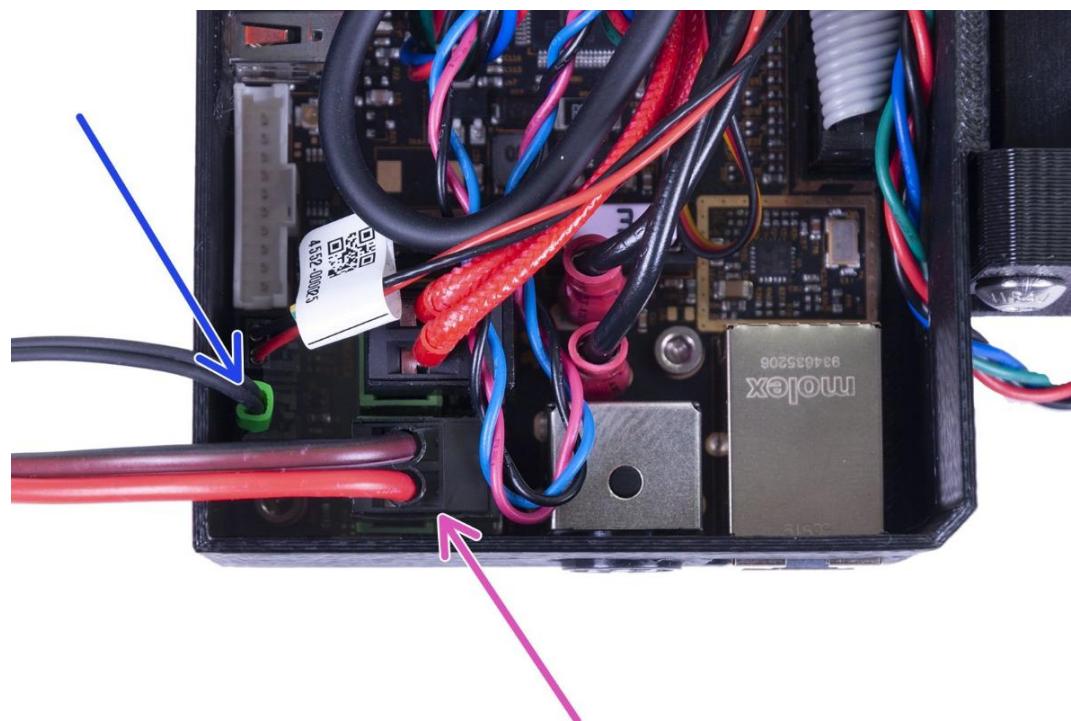


Figure 5.1.30

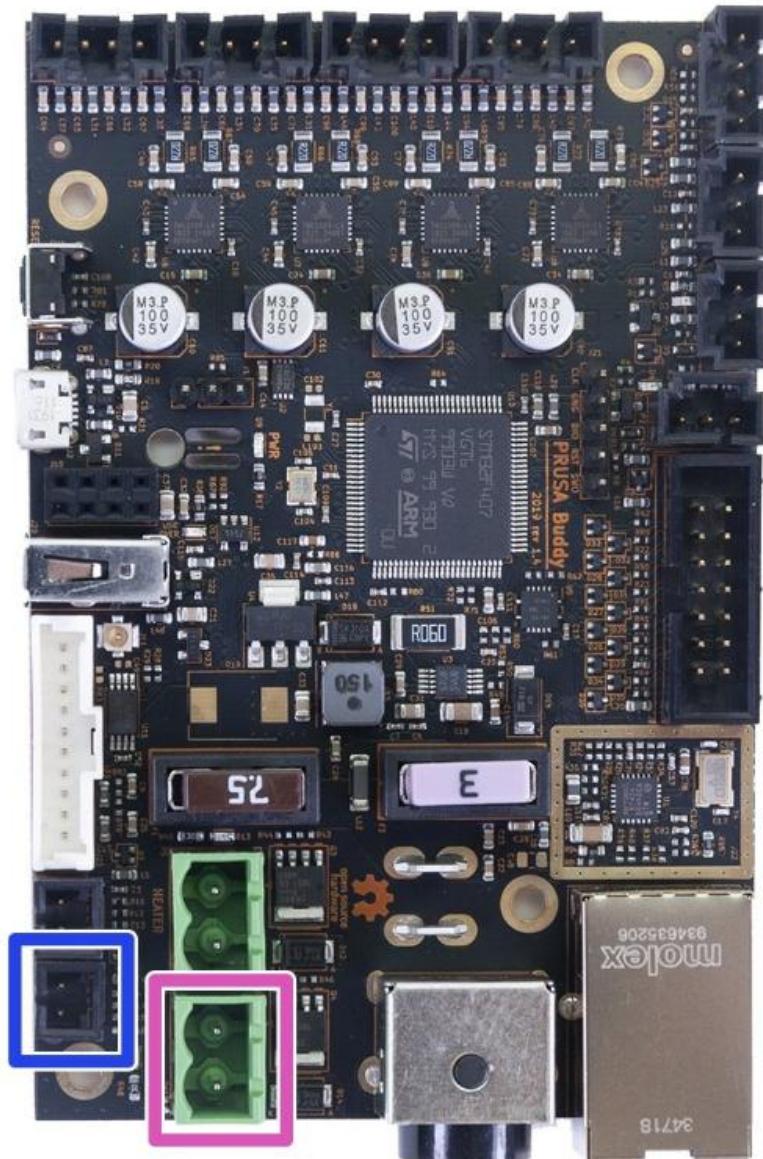


Figure 5.1.31

C: As shown in Figure 5.1.32. Gently push the cables inside the box and position the wrap near the top left corner, where most of the cables enter the box.

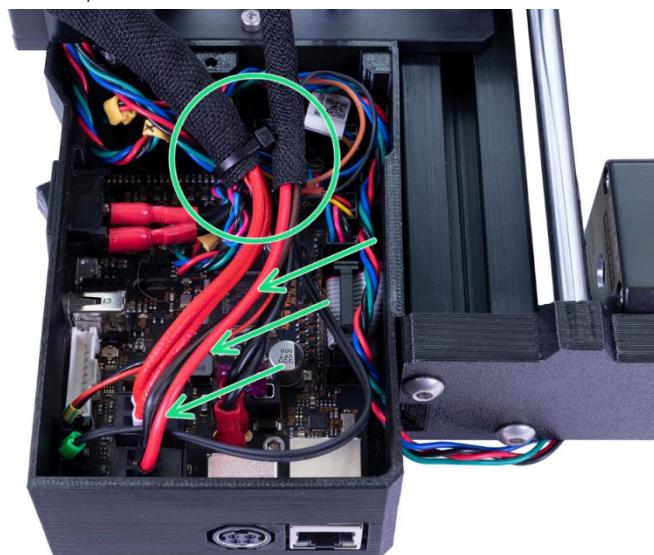


Figure 5.1.32

## (2) Breakout detection module installation

**Step 5-2-1:** As shown in Figure 5.2.1. Prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

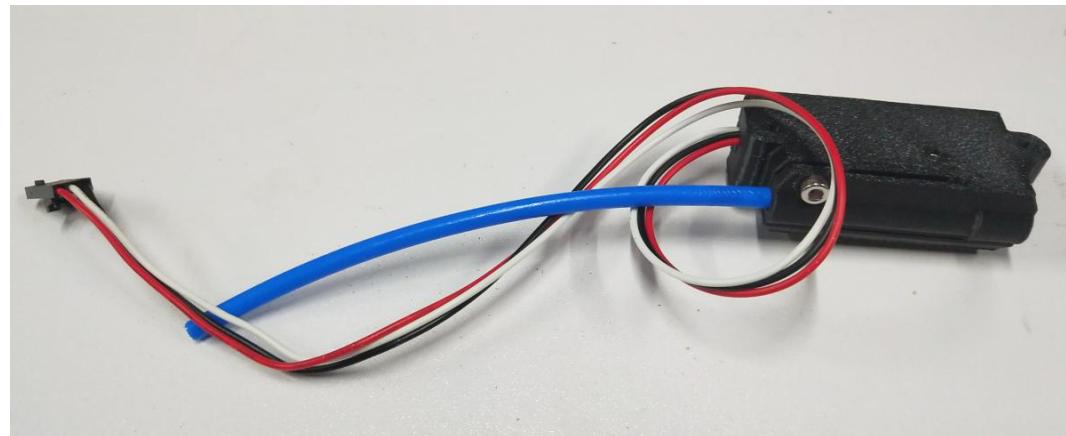


Figure 5.2.1

**Step 5-2-2:** As shown below.

**A:** As shown in Figure 5.2.2. Connect the filament sensor cable to the Buddy board.

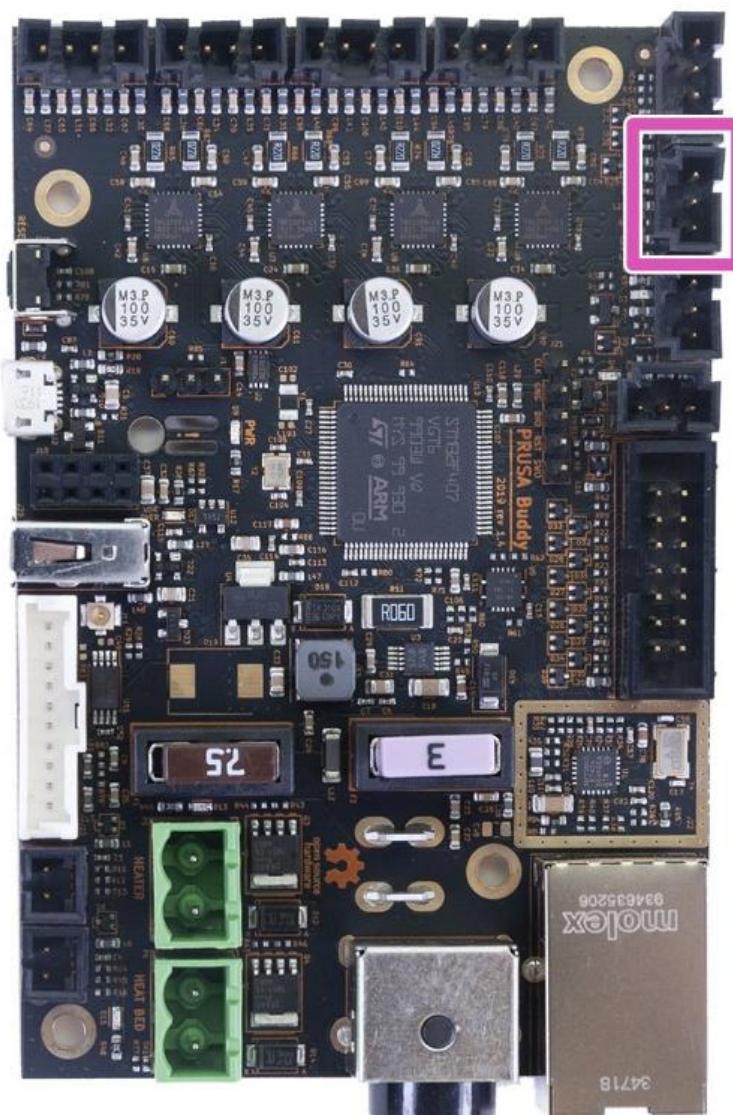


Figure 5.2.2

**B:** As shown in Figure 5.2.3. Arrange the cable according to the picture. Keep in mind

that the electronics cover must fit into place.

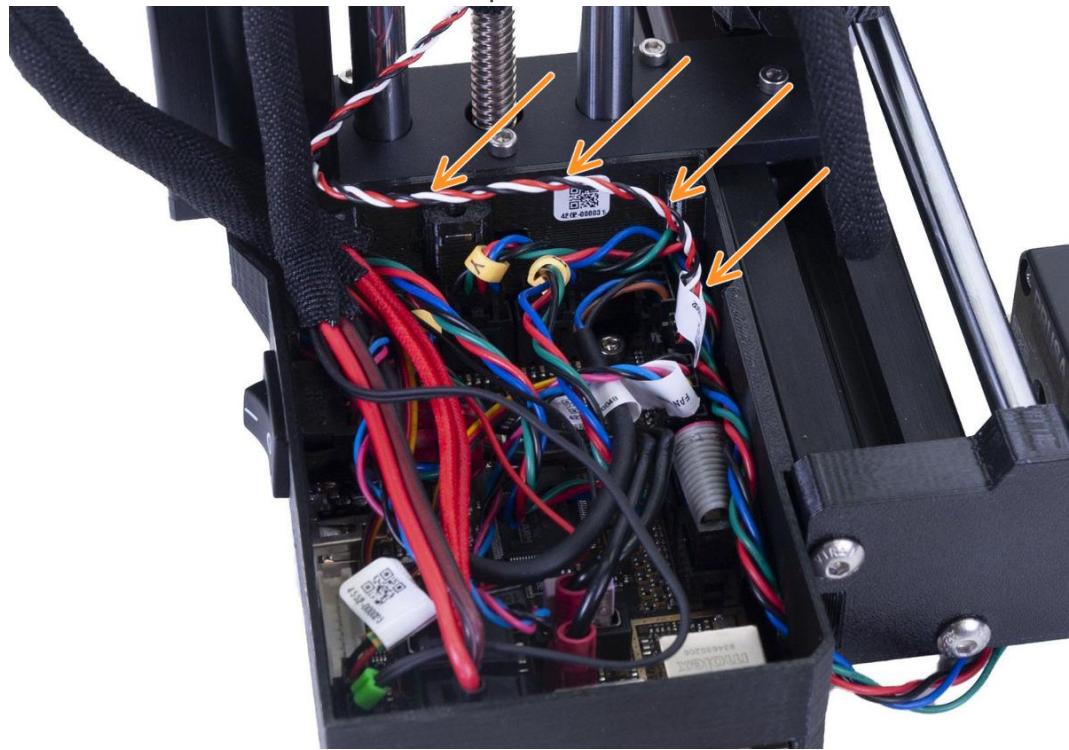


Figure 5.2.3

- C: As shown in Figure 5.2.4. Insert the other end of the material breakage detection into the extruder Teflon tube.

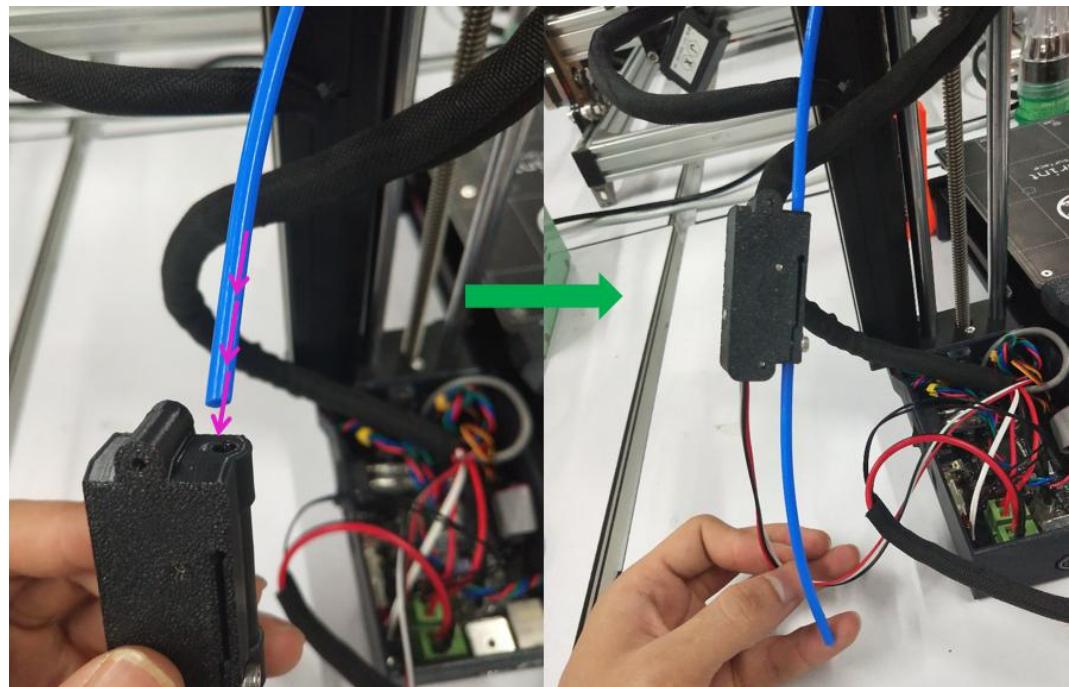


Figure 5.2.4

### (3) Motherboard cover installation

**Step 5-3-1:** As shown in Figure 5.3.1. Insert the cover , make sure it is properly seated in the slot.

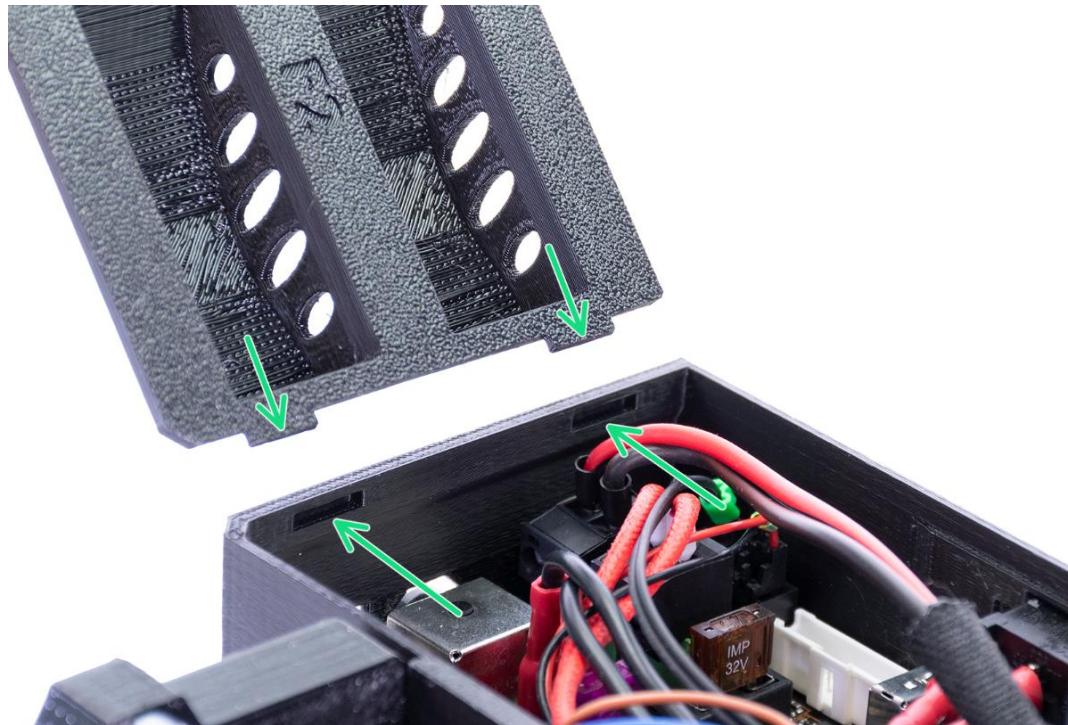


Figure 5.3.1

**Step 5-3-2:** As shown in Figure 5.3.2.

- A:** Place the second cover on the top and arrange the cables.
- B:** **Extruder bundle**, ensure the textile sleeve is partially in. Also, it must be tilted away from the printer.
- C:** **Heatbed bundle**, ensure the textile sleeve is partially inside the box.
- D:** **Filament sensor cable** (optional), ensure that the textile sleeve wrapped around the cables is partially inside the box.
- E:** Now, tighten the second cover with one M3×12 cylindrical head bolt. Check that no cables are caught.

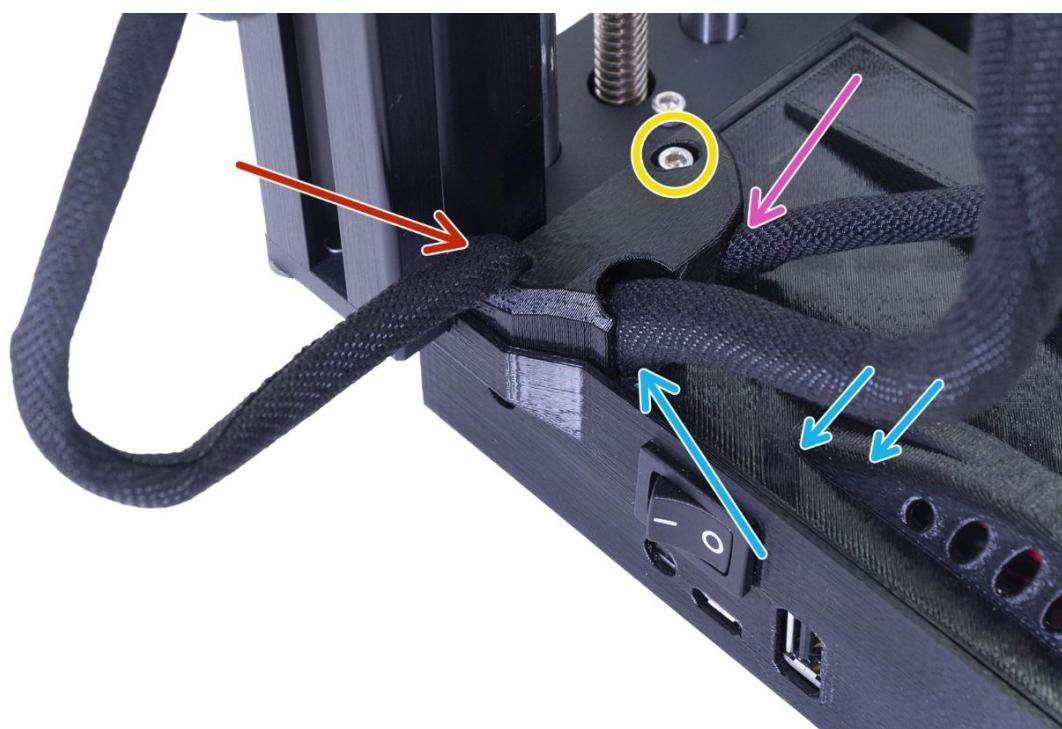


Figure 5.3.2

## (4) Spool holder installation

**Step 5-4-1:** As shown in Figure 5.4.1. Prepare the materials and check whether the quantity of materials is correct, and prepare for the next installation.

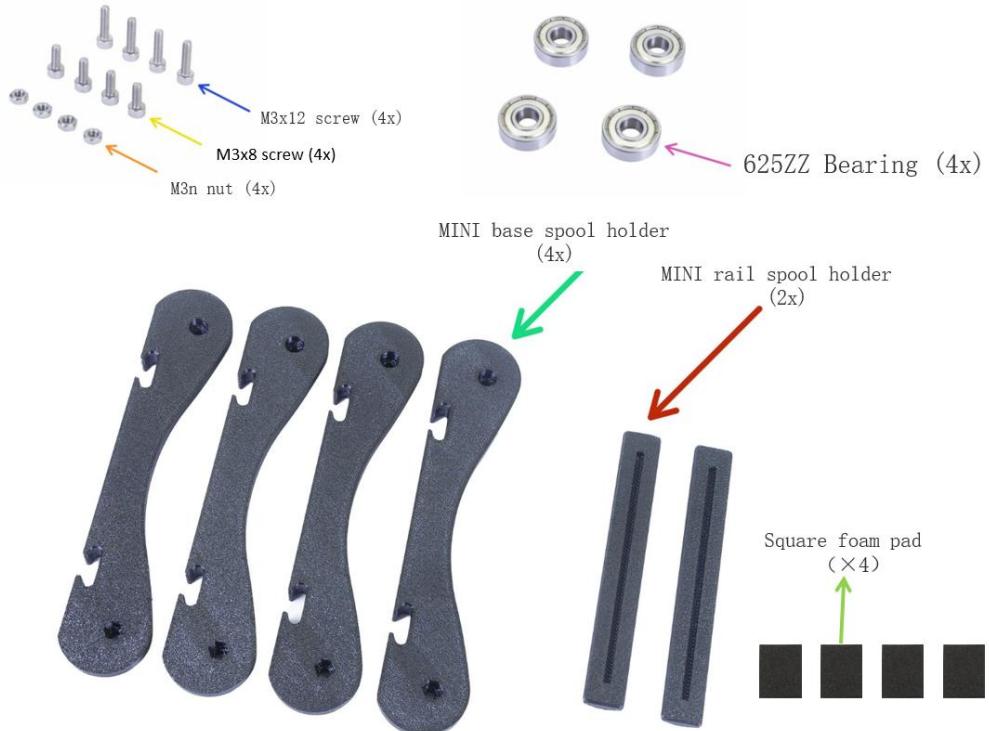


Figure 5.4.1

**Step 5-4-2:** As shown below.

**A:** As shown in Figure 5.4.2. Take the two BASE parts and insert the M3n nuts into the holes in both of them - see the picture. If you can't push them in, insert a screw from the opposite side to pull them in.

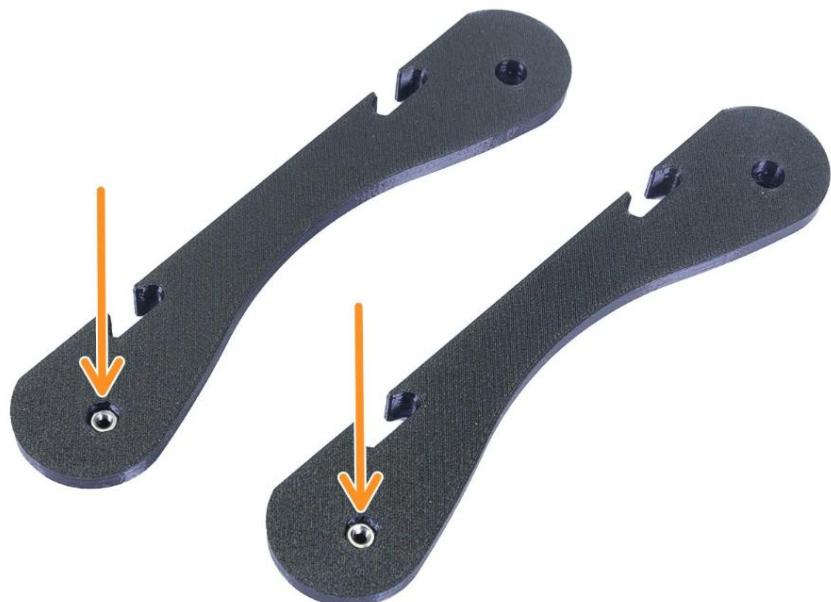


Figure 5.4.2

**B:** As shown in Figure 5.4.3. Flip one of the BASE parts and insert two bearings in it.



Figure 5.4.3

- C:** As shown in Figure 5.4.4. Put the second BASE part on top of the bearings.
- D:** As shown in Figure 5.4.4. Insert the M3x12 screw from the top and tighten it. Flip the base assembly over and do the same.

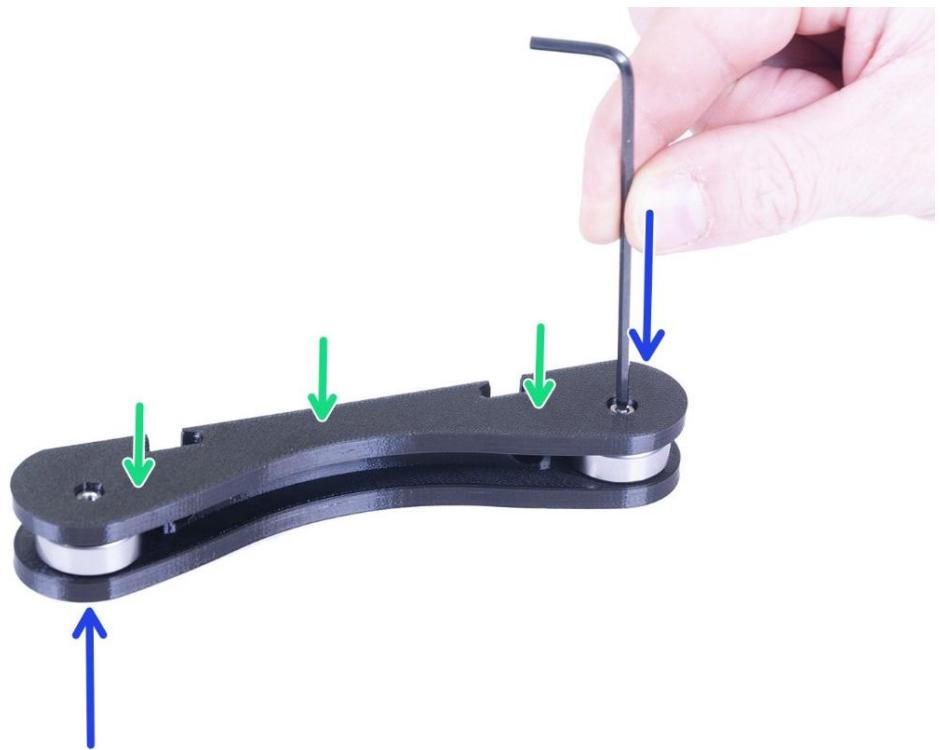


Figure 5.4.4

- D:** Make sure both bearings can rotate freely. If not, release the screw(s) slightly.
- E:** **Repeat this step** for the second base assembly.
- Step 5-4-3:** As shown below.
- A:** As shown in Figure 5.4.5. Slide both rails in the first base assembly, use the grooves. Align the rail with the edge of the base.



Figure 5.4.5

**B:** As shown in Figure 5.4.6. Secure the first base with two M3x8 screws. Use a reasonable force during the tightening.



Figure 5.4.6

**C:** As shown in Figure 5.4.7. Slide the second base onto the rails. The exact position is not important at this point - we will adjust it in the next step.



Figure 5.4.7

**D:** As shown in Figure 5.4.8. Place a spool of the filament you wish to use in the spool holder. Align the second base to match the size of the spool. *We are using a spool of Prusament as an example.*



Figure 5.4.8

**E:** As shown in Figure 5.4.9. Once the holder is aligned, remove the spool, insert two M3x8 screws and tighten them to prevent the parts from moving.



Figure 5.4.9

**Step 5-4-4:** As shown below.

**A:** As shown in Figure 5.4.10. Grab the bundled anti-slip board and break out four pads.

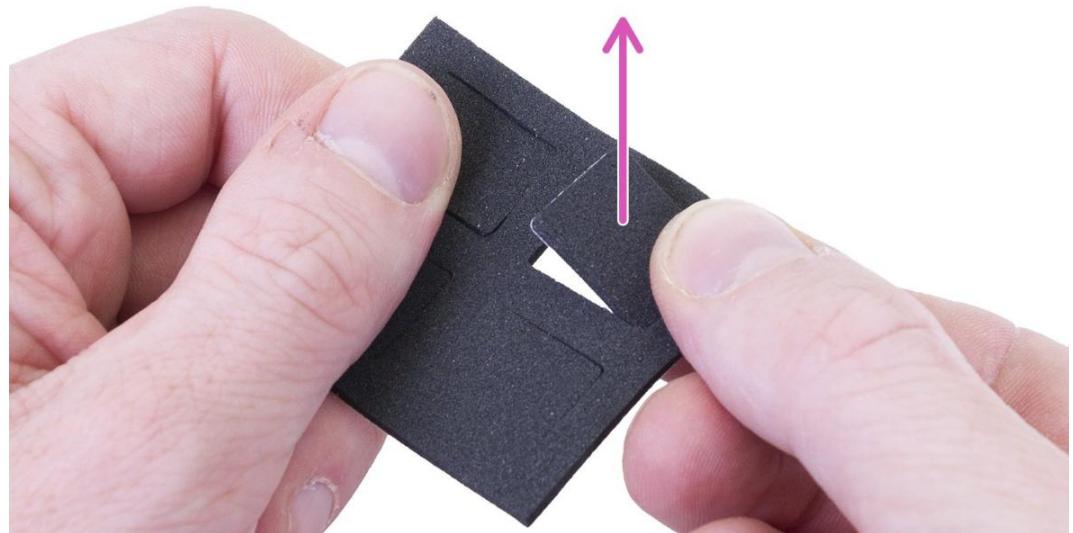


Figure 5.4.10

**B:** As shown in Figure 5.4.11. Peel off the protective film and attach the pads from the bottom side of the spool holder.

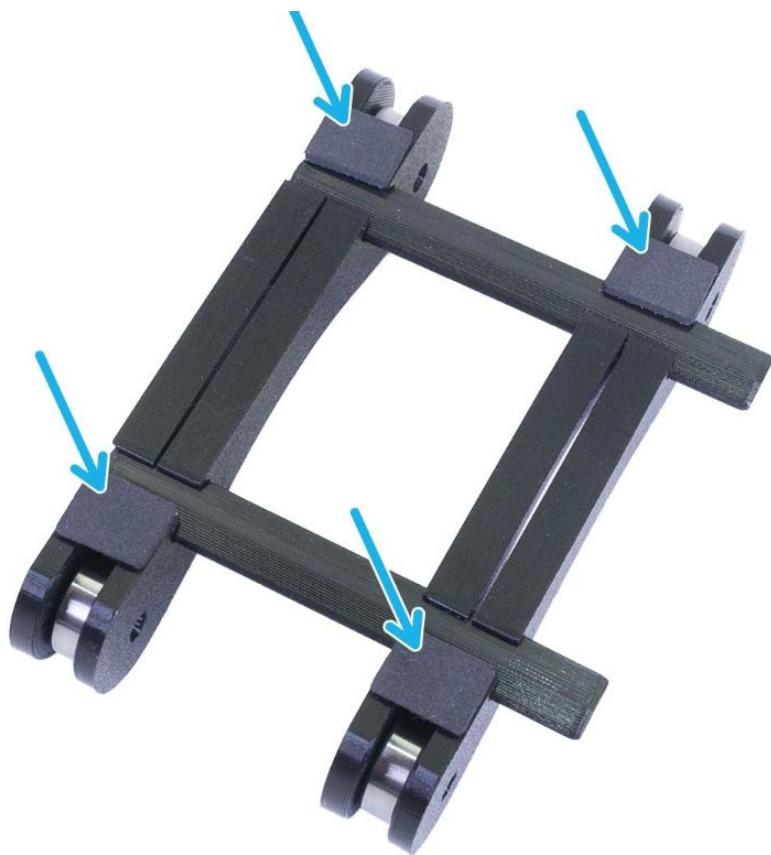


Figure 5.4.11

**C:** Tip: avoid attaching the pads near or on the rails, it might make future width adjustments harder.

## (5) Last step

**Step 5-5-1:** As shown in Figure 5.5.1. Remove the protective film from the display.



Figure 5.5.1

**Step 5-5-2:** As shown in Figure 5.5.2. Connect the MINI power supply to the printer. Keep

in mind the connector isn't symmetrical.



Figure 5.5.2

**Step 5-5-3:** As shown in Figure 5.5.3. Place the PEI MINI sheet on the heatbed. Double-check it is oriented correctly.

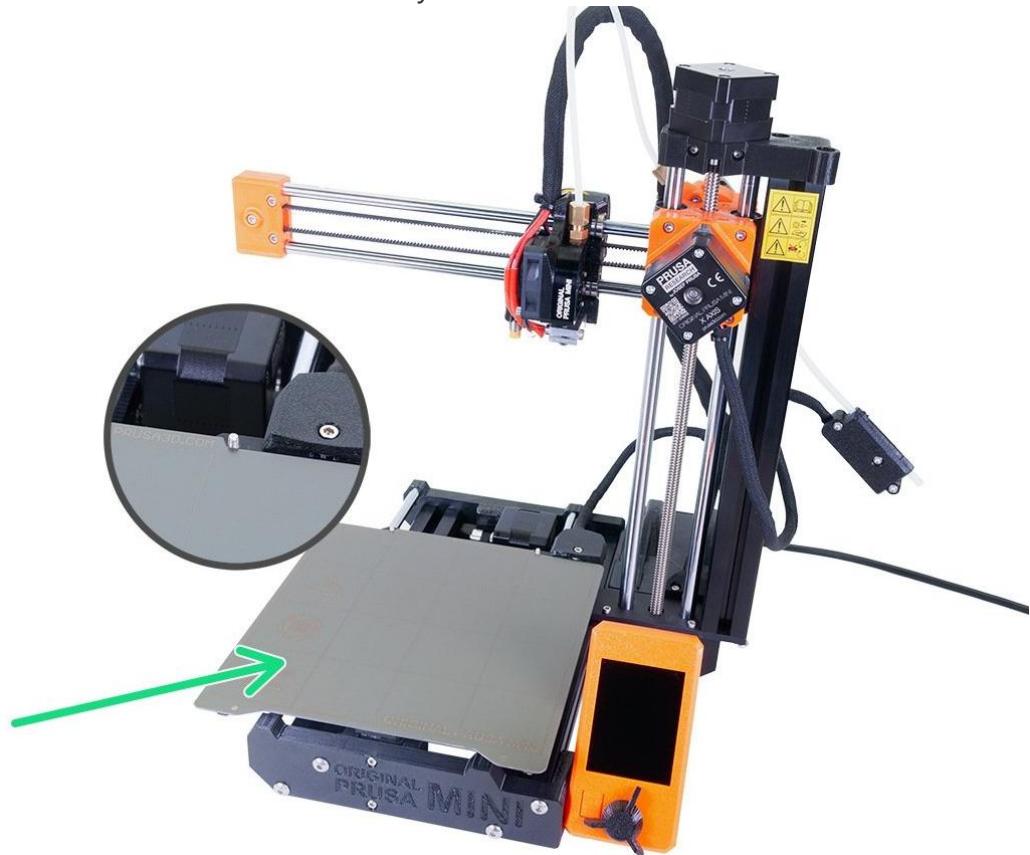


Figure 5.5.3

**Now, well done! Congratulations on completing the assembly of the new machine!**