



<https://tevo3dprinterstore.com>



# ASSEMBLY MANUAL

Tevo 3D Electronic Technology Co., Ltd.

# Read me first

**READ THIS MANUAL COMPLETELY BEFORE ASSEMBLING AND POWERING UP YOUR PRINTER!**

## Hazards and Warnings

The TEVO Flash 3D printer has motorized and heated parts. When the printer is in operation always be aware of possible hazards.

### Electric Shock Hazard

Never open the electronics bay of the printer while the printer is powered on. Before removing the access door, always power down the printer and unplug the AC line cord.

### Burn Hazard

Never touch the extruder nozzle, or the heater block without first turning off the hotend and allowing it to completely cool down. The hotend can take up to twenty minutes to completely cool down. Also, never touch recently extruded filaments. The filament can stick to your skin and causes burn.

### Fire Hazard

Never place flammable materials or liquids on or near the printer when powered on or in operation. Liquid acetone and vapors are extremely flammable.

### Pinch Hazard

When the printer is in operation, be careful never to put your fingers in the moving parts, including the belts, pulleys, gears, wheels or leadscrews.

### Static Charge

Make sure to ground yourself before touching the printer, especially the electronics. Electrostatic charges can damage electronic components. To ground yourself, touch a grounded source.

### Age Warning

For user under the ages of 18, adult supervision is recommended. Beware of choking hazards around children.

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# Letter from TEVO

Dear Customer,

Thank you for choosing the Tevo Flash 3D printer.

This guide will step you through the assembly and the first run of the printer. If you have any problems during assembly, please go to our Facebook group:  
<https://www.facebook.com/groups/TEVO.Flash/>

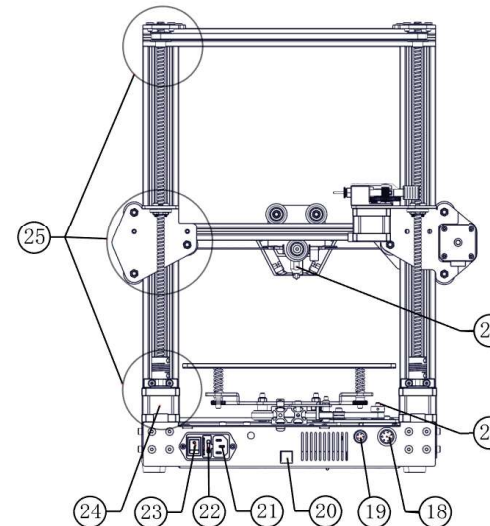
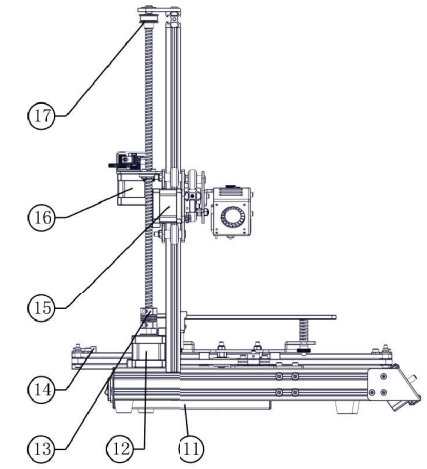
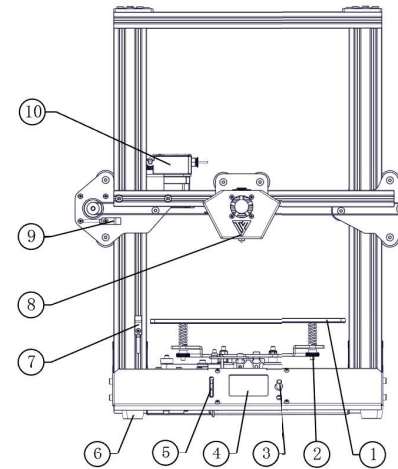
If you cannot resolve your problem there, do not hesitate to contact us through the website <http://support.tevoprinter.com>

Please make sure that all screws are tight and wheels are running smoothly and snug against the extrusions.

Regards,

TEVO Team

# Know Your Printer

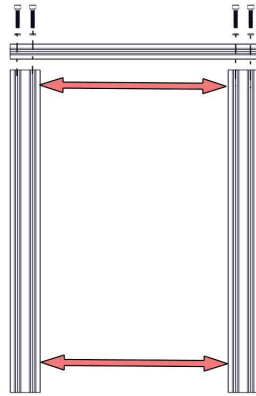


- |                                   |                             |
|-----------------------------------|-----------------------------|
| 1. Building Platform              | 20. USB Port                |
| 2. Leveling Nut                   | 21. Power Inlet             |
| 3. Knob                           | 22. Fuse                    |
| 4. LCD                            | 23. Power Switch            |
| 5. SD Slot                        | 24. Z Motor (Dual Z Option) |
| 6. Rubber Feet                    | 25. Dual Z Parts (Optional) |
| 7. Z Endstop                      | 26. BLTouch (Optional)      |
| 8. Hotend Assembly                | 27. Y Motor                 |
| 9. X Endstop                      |                             |
| 10. Tevo Titan Extruder           |                             |
| 11. Control Box                   |                             |
| 12. Z Motor                       |                             |
| 13. Coupler                       |                             |
| 14. Y Endstop                     |                             |
| 15. X Motor                       |                             |
| 16. Extruder (E) Motor            |                             |
| 17. Timing Pulley (Dual Z Option) |                             |
| 18. 8-Pin Connector               |                             |
| 19. 5-Pin Connector               |                             |

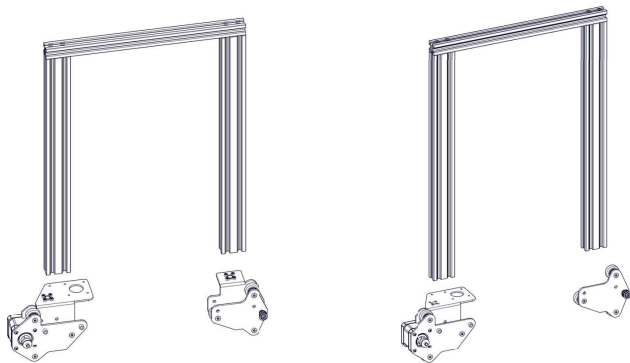
## Assembly (DIY Version)

### 1. Assembling the gantry frame.

- Use the M5x25 screws (4 pcs) and spring washers (4 pcs) from A-01 screw bag, assemble the gantry as shown in the following picture. With 430mm 2040 aluminum extrusion (2 pcs) on two side and 330mm 2020 aluminum extrusion on top. Make sure all three aluminum extrusions are lay flat, the distance between two side should be 250mm.

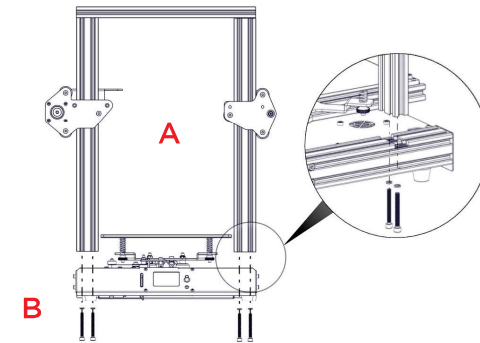


- Slide the Z carriage on both side on to the gantry frame as shown in picture below. If you have chosen the Dual Z option, please refer to the picture on the left, and right for non-Dual Z option.



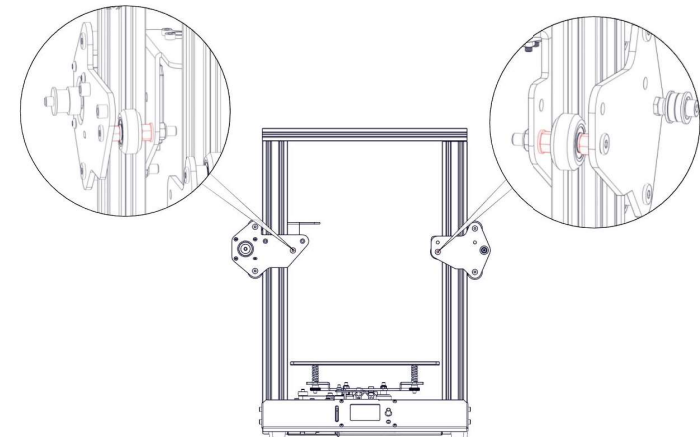
## Assembly (DIY Version)

- Install the gantry frame (A) to the base frame (B). Use the M5x45 screws (4 pcs) and spring washers (4 pcs). Raise the base frame above the table with two blocks (boxes, books, etc.) Install the screws through the base frame into the threaded holes in the gantry frame. Tighten with the M5 hex key (Allen) wrench. Make sure the gantry sits flush in the slot on the base frame on both side.



### 2. Adjust Z Carriage Wheels.

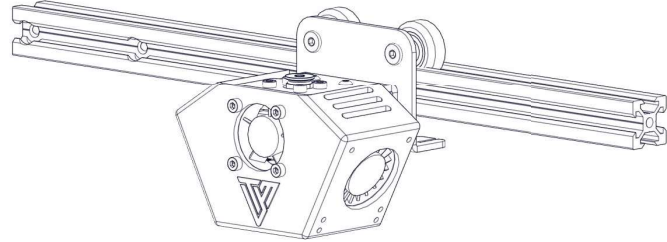
- Use the wrench supplied to adjust the eccentric nuts as shown in picture below, make sure all wheels are running smoothly and snug against the extrusions.



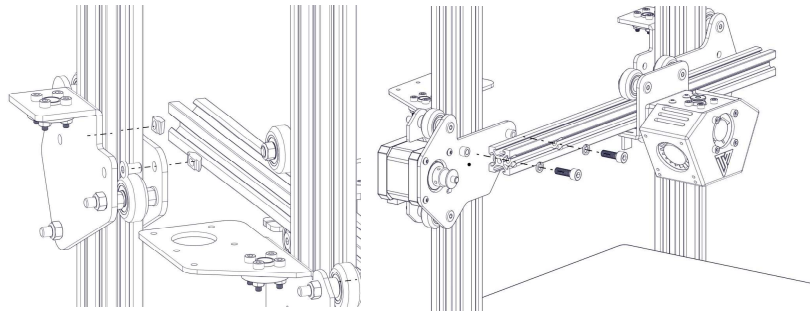
## Assembly (DIY Version)

### 3. X Axis Installation.

- Slide the hotend assembly onto the 345mm 2020 aluminum extrusion. Make sure the pre-drilled holes are on the left (as shown in picture.)



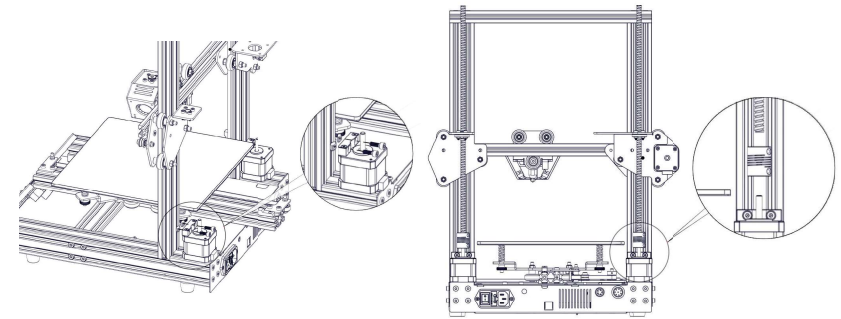
- Use M5x8 (2 pcs) and M5 T-nut (2 pcs) from screw bag A-03. Slide the T-nuts into the slot on the aluminum extrusion as shown in picture, slightly tighten the screws. (Dual Z option shown in picture.)
- Use M5x15 (2 pcs) and M5 spring washers (2 pcs) from screw bag A-03. Install the aluminum extrusion onto the carriage through the pre-drilled holes as shown in picture below.



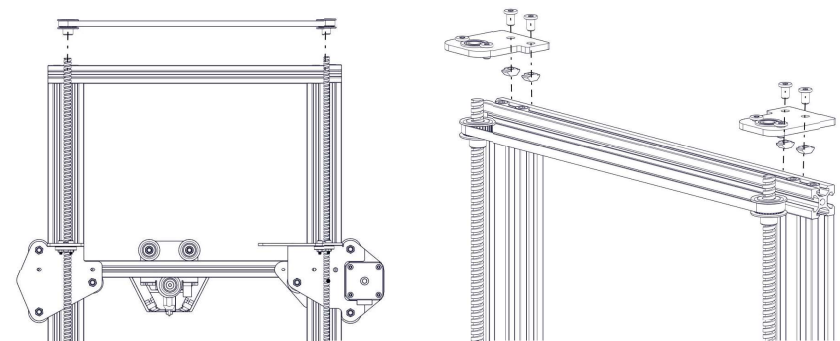
### 4. Z Axis Installation.

- Z Motor Installation:** To install Z motor, use M4x12 (4 pcs for Dual Z, 2 pcs for standard) and M4 T-nut (4 pcs for Dual Z, 2 pcs for standard) to install the motor as shown in pictures below. Sit the motor on the base and tighten the screws.

## Assembly (DIY Version)



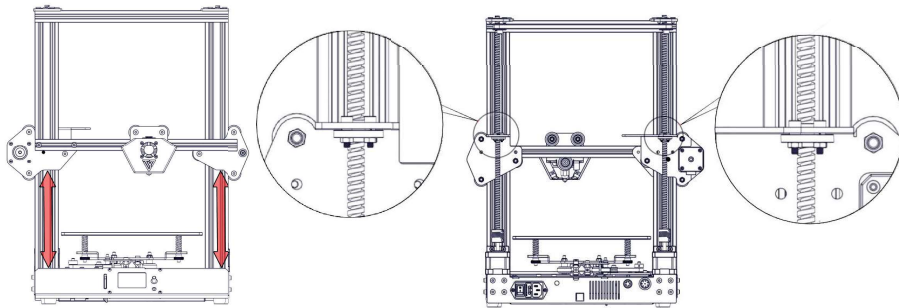
- Leadscrew Installation:** Connect the leadscrew to the motor with elastic coupler as shown in picture. Do the same on the other side for Dual Z version.
- (Dual Z Only) Timing Belt Installation:** Put the 30T timing pulley on the top end of the leadscrews, tighten only one side and keep the other side loose. As shown in picture below.
- Bearing Support Bracket:** Use M5x8 (4 pcs for Dual Z, 2 pcs for standard) and M5 T-nuts (4 pcs for Dual Z, 2 pcs for standard) to fix the bracket onto the top of the gantry as shown in picture below. Make sure the leadscrew goes into the bearing.



## Assembly (DIY Version)

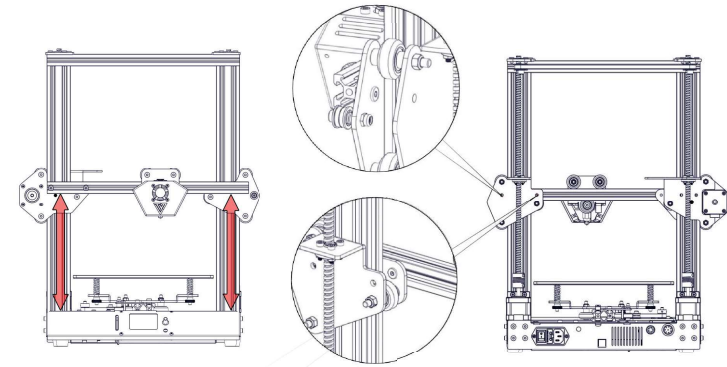
### 5. Adjusting the Z Carriage.

- a. Adjusting carriage height (Dual Z Only): To adjust the carriage height on both end, slowly and slightly turn the leadscrews on both end, make sure the distance from the bottom of the carriages to the base frame are the same on both side. You can use any object as a reference to help adjusting.
- b. Fixing the height: To fix the height, tighten the T8 nuts to the carriage with M3x12 screws pre-installed. You need to tighten the 30T pulley on top for Dual Z version.



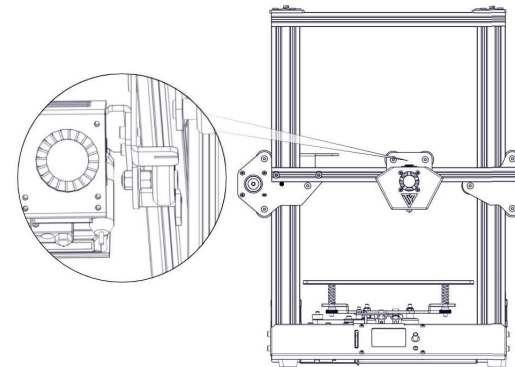
- c. X axis height adjustment: As shown in pictures below, make sure the distance from the bottom of the extrusion to the base frame are the same on both side. You may want to use a ruler or an object as a reference.
- d. Fixing the extrusion: Tighten the M5x8 screws on the back of the carriage. (You need to go through the 2 holes on the back plate for Dual Z version.)

## Assembly (DIY Version)



### 6. Adjusting X Carriage.

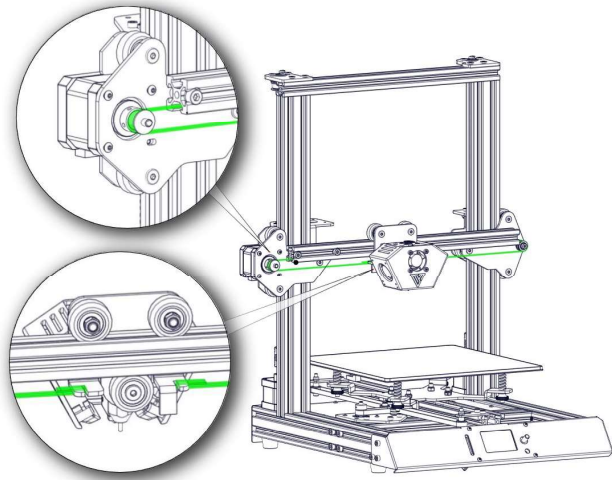
Use the wrench supplied to rotate the eccentric nut as shown in picture below until the wheel is snug against the extrusion.



### 7. X Axis Timing Belt Installation.

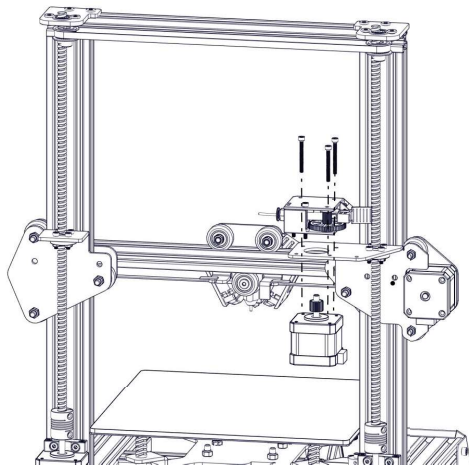
Wrap the belt around the pulley and bearing on both end and fix it to the carriage as shown in picture below (you may want to wrap the belt around the slot from bottom and goes around to the top) and tighten it with zip tie. You can adjust the tension of the belt by loosen the screws fixing the X stepper motor.

## Assembly (DIY Version)



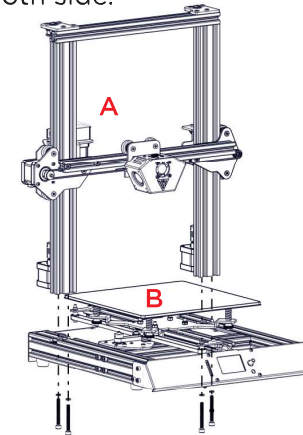
### 8. Titan Extruder Installation.

Use M3x30 screws (3 pcs) from screw bag A-04 to install the extruder as shown in picture below.



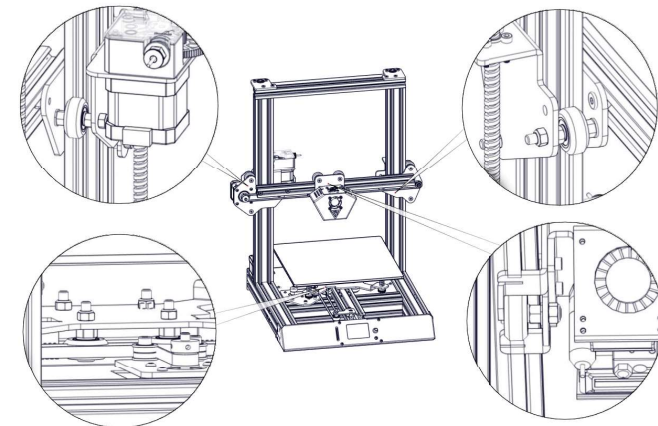
## Assembly (Preassembled Version)

1. Gantry Installation: Use M5x45 (4 pcs) and M5 spring washers (4 pcs) from screw bag A-02. Raise the base frame above the table with two blocks (boxes, books, etc.) Install the screws through the base frame into the threaded holes in the gantry frame. Tighten with the M5 hex key (Allen) wrench. Make sure the gantry sits flush in the slot on the base frame on both side.



### 2. Adjusting the Wheels.

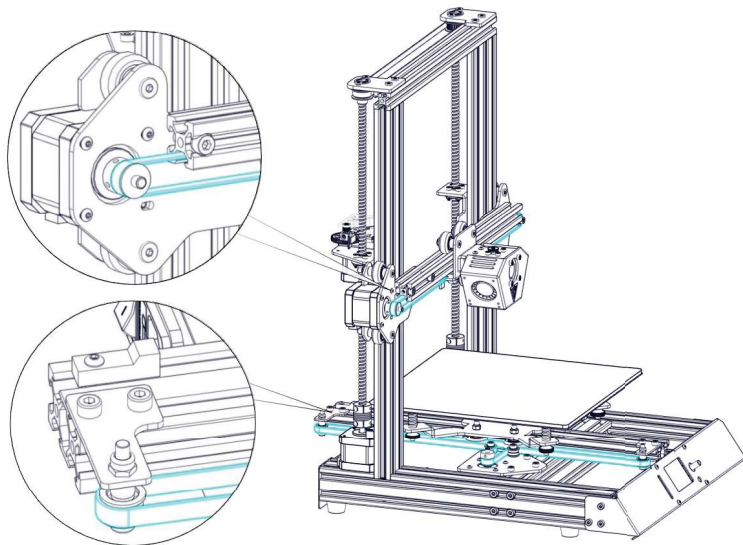
Use the wrench supplied to rotate the eccentric nuts in the position shown in the picture below. Adjust the wheels until they are snug against the extrusions.



## Assembly (Preassembled Version)

### 3. Adjusting the Belt Tension.

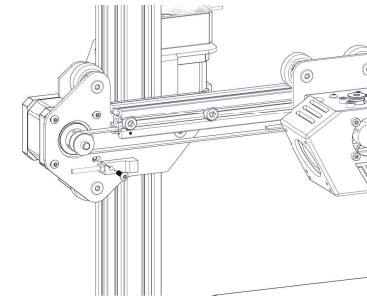
- a. X axis belt: Adjust the tension of the belt by loosen the screws holding the X stepper motor, pull it outwards until the belt are tight, then tighten the screws.
- b. Y axis belt: Adjust the tension of the belt by loosen the bracket on the back, pull it outwards until the belt are tight, then tighten the screws.



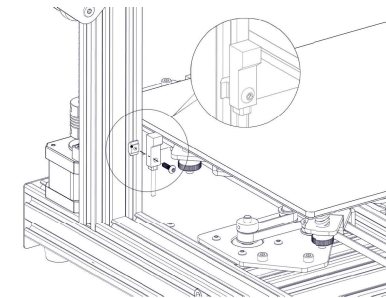
## Electronics Installation

### 1. Endstops Installation.

- a. IX Endstop Installation: Use M3x10 screw from screw bag A-05 and install the sensor at the location shown in the picture below.



- b. Z Endstop Installation: Un M3x10 screw and M3 T-nut from screw bag A-05, fix the sensor at the location shown in the picture below.



### 2. Cabling.

- a. Stepper motor: Plug in the steppers according to the axis. E1 goes to the second Z motor for Dual Z version.
- b. DIN connectors: Plug the 8-pin DIN connector to the back of the control box. Plug in the 5-pin one for BLTouch version.
- c. Power cable: Connect the power cable.



## Prepare for First Print

### 1. Loading Filament.

- a. Preheat: Go to menu from LCD, then choose Prepare--> Preheat PLA / Preheat ABS--> Preheat PLA End / Preheat ABS End.
- b. Loading filament: Wait for hotend to get up to temperature and stable, hold down the lever on the extruder and insert your filament (not supplied). Turn the big gear counter-clockwise to load in the filament, make sure it goes all the way through into the PTFE tube, you can speed up by pushing the filament in by hand (make sure it is in the PTFE tube first) until you feel resistance coming from going through the nozzle.

### 2. Adjusting the Build Plate.

To build good parts, the build plate needs to be the same distance away from the nozzle in all locations (approx. 0.1mm). This is about the thickness of a single piece of A4 paper. You want to adjust the height of the build plate so that you can barely slide the paper between the nozzle and the build plate with only a little resistance.

1. Go to menu from LCD, then choose Prepare -> Preheat PLA / Preheat ABS -> Preheat PLA Bed / Preheat ABS Bed
2. Wait for the heated bed get up to temperature and stable, then choose Bed Leveling -> Home Me First
3. Standard version: After Homing, go to Prepare -> Bed Leveling -> Front Left. The nozzle should now move to the Front Left corner of the build area, slide a piece of A4 paper between the nozzle and build plate, adjust the height of the bed with the thumb nut below until you can barely slide the paper between the nozzle and the build plate with only a little resistance.

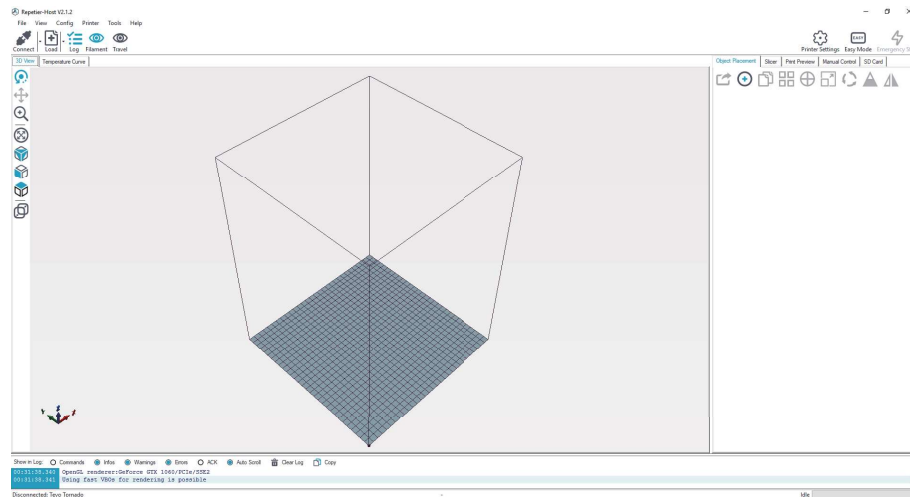
## Prepare for First Print

4. Standard version: Repeat previous step on Front Right, Rear Left, and Rear Right corners. You may want to do it AT LEAST twice because adjusting one corner may affect others.
5. BLTouch version: After Homing, the nozzle will be at the center of the build area. Go to Prepare -> Move Axis -> Move Z -> Move 0.1mm.  
From here, slowly lower the nozzle to 0.0mm or until at a height that the nozzle is about 0.1mm away from the build plate. If the nozzle is still far away from the build plate when it's at 0.0mm or it will crash into the build plate when it is 0.0mm, go to Control -> Motion -> Z Offset.  
Adjust the offset 0.1mm at a time and do the homing and and lower the nozzle again, the smaller the number the further it goes down, vice versa. Repeat this until the nozzle is approx. 0.1mm above the build plate or you can barely slide a piece of A4 paper between the nozzle and the build plate.
6. BLTouch version: After you have set the correct Z offset at the center, go to Control -> Store settings.
7. BLTouch version: Now, go to Bed Leveling -> Home Me First, then Bed Leveling -> Front Left, slowly lower the nozzle to 0.0mm and adjust the build plate with thumb nut.
8. BLTouch version: Repeat the previous step on 3 other corners. Repeat step 7-8 at least twice since adjusting one corner may affect others.
9. BLTouch version: Now the build plate is prepared, you may add auto level G-code G29 to your slicer's Start G-code to do auto leveling everytime you start your print, or run it when you see there's problem with the leveling.

## Prepare Slicing Software

This printer works with most slicing / printing software like Repetier-Host, Cura, Simplify3D, etc. But we will go in details for Repetier-Host and tell you how to set it up so that you can make your first print. First, you can download the software from our website at <http://www.tevo.cn/software-download.php>

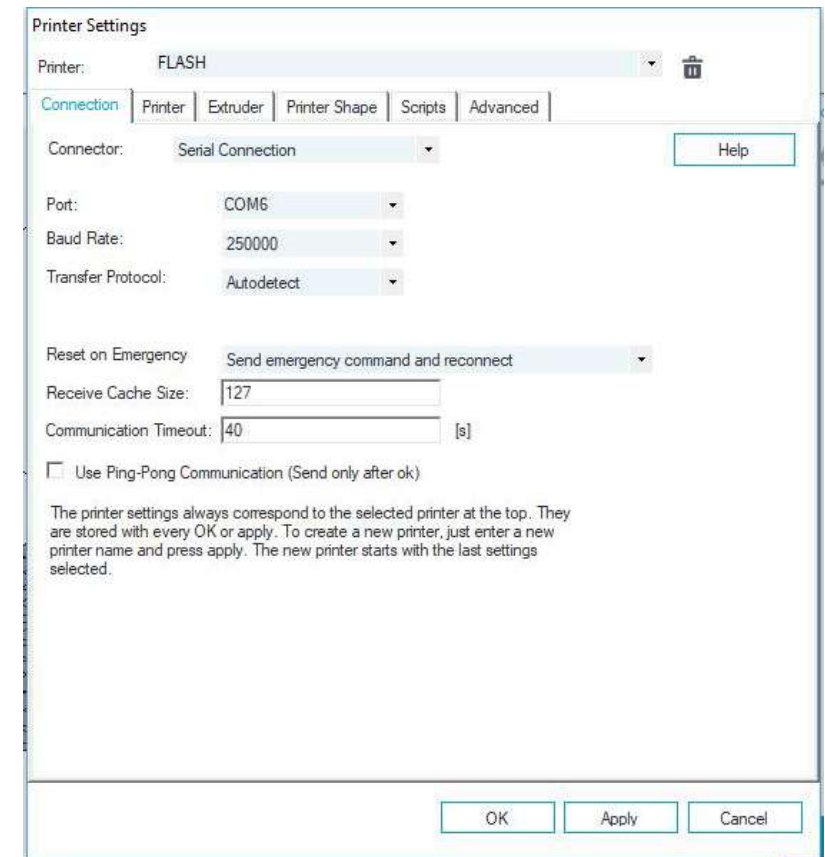
After installation is done and you start the software, you should get the following screen:



Now we have to setup our printer in the settings so that Repetier-Host can connect to it and will know what size of the build area our printer use. Open the Printer Settings window (click Config--> Printer Settings).

## Prepare Slicing Software

First set Port to whatever port your printer use (you have to connect the printer to your computer before this step, or you can skip Port setting if you are going to print SD card only.) Set Baud Rate to 250000 and DO NOT touch any other settings in this tab.



## Prepare Slicing Software

Click on Printer Shape tab, change the following values:

X Max - 240

Y Max - 240

Print Area Width - 235

Print Area Depth - 235

Print Area Height - 250

Printer Settings

Printer: FLASH

Connection | Printer | Extruder | **Printer Shape** | Scripts | Advanced

Printer Type: Classic Printer

Home X: 0 Home Y: 0 Home Z: 0

X Min: 0 X Max: 240 Bed Left: 0

Y Min: 0 Y Max: 240 Bed Front: 0

Print Area Width: 235 mm

Print Area Depth: 235 mm

Print Area Height: 250 mm

The min and max values define the possible range of extruder coordinates. These coordinates can be negative and outside the print bed. Bed left/front define the coordinates where the printbed itself starts. By changing the min/max values you can even move the origin in the center of the print bed, if supported by firmware.

Y Max

E

C

OK Apply Cancel

## Prepare Slicing Software

Go to Printer tab, change the following values:

Travel Feed Rate - 15000

Z-Axis Feed Rate - 15000

Manual Extrusion Speed - 2 / 20

Manual Retraction Speed - 30

Default Extruder Temperature - 200

Default Heated Bed Temperature - 55

Then click on OK to save the settings.

Printer Settings

Printer: FLASH

Connection | **Printer** | Extruder | Printer Shape | Scripts | Advanced

Travel Feed Rate: 15000 [mm/min]

Z-Axis Feed Rate: 15000 [mm/min]

Manual Extrusion Speed: 2 / 20 [mm/s]

Manual Retraction Speed: 30 [mm/s]

Default Extruder Temperature: 200 °C

Default Heated Bed Temperature: 55 °C

Check Extruder & Bed Temperature

Remove temperature requests from Log

Check every 3 seconds. 3

Park Position: X: 0 Y: 0 Z min: 0 [mm]

Send ETA to printer display  Go to Park Position after Job/Kill

Disable Extruder after Job/Kill  Disable Heated Bed after Job/Kill

Disable Motors after Job/Kill  Printer has SD card

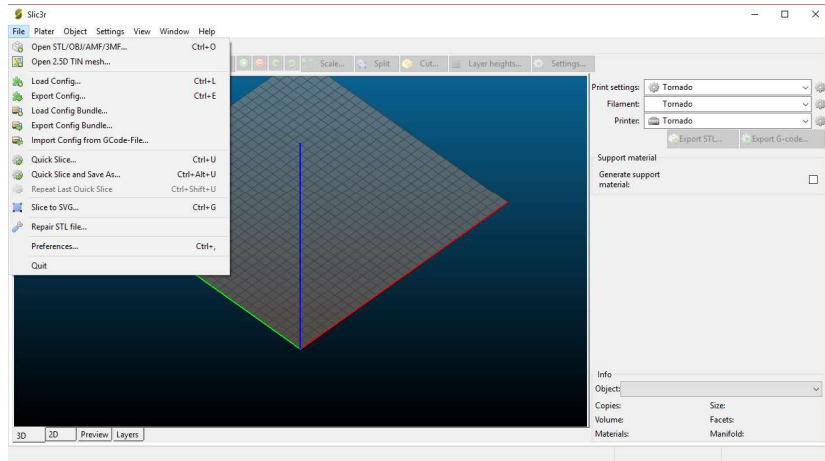
Add to comp. Printing Time: 8 [%]

Invert Direction in Controls for  X-Axis  Y-Axis  Z-Axis  Flip X and Y

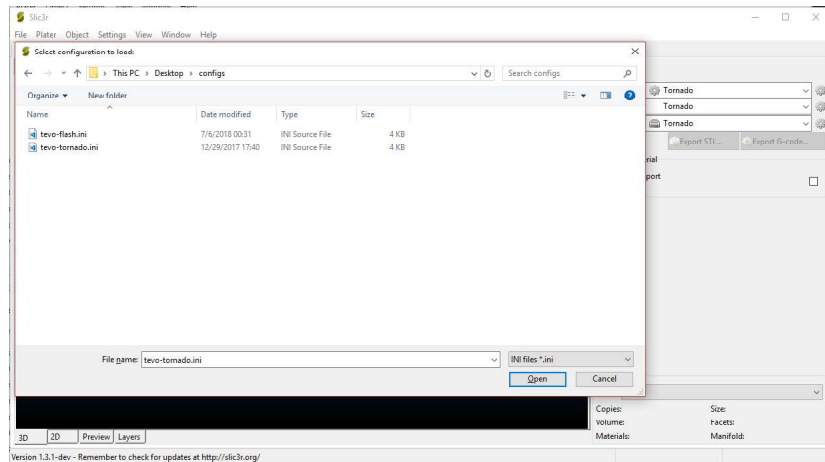
OK Apply Cancel

# Prepare Slicing Software

On Repetier-Host main screen, click on Slicer tab on the right. Choose Slic3r from Slicer drop-down then click on Configuration button. On Slic3r window, click on File -> Load Config...

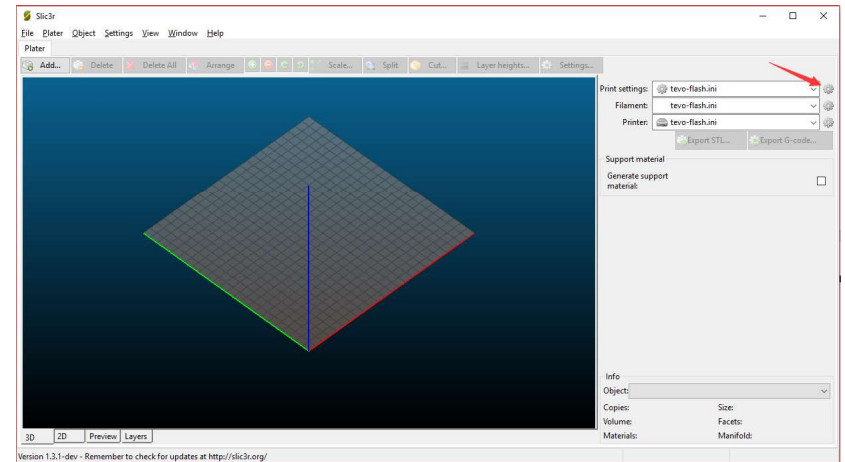


Browse to the SD card or the location you saved the config file. (You can download the latest version of the config file from <http://www.tevo.cn/software-download.php>) Select the ini file and click on Open.

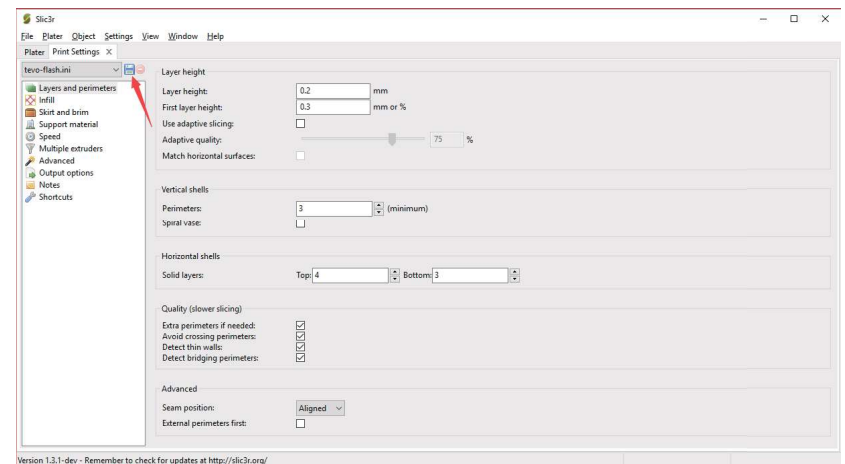


# Prepare Slicing Software

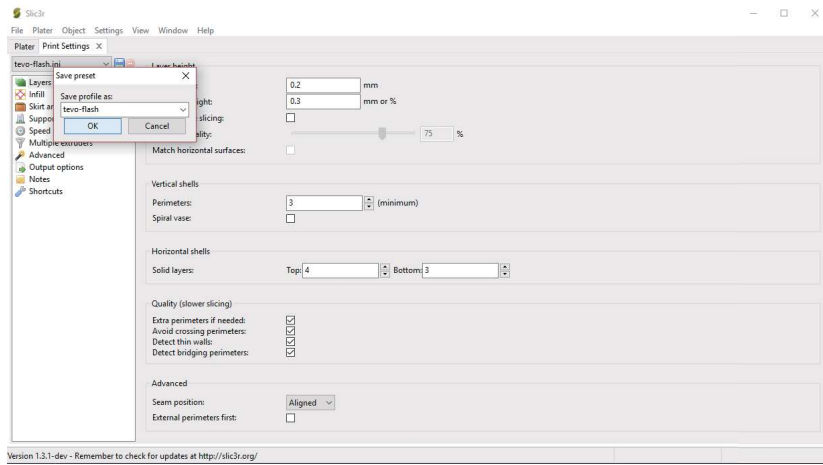
Click on the Gear icon next to Print settings, Filament, Printer respectively.



Click on the Save icon on the next page, rename it to tevo-flash / Flash or any name of your choice.



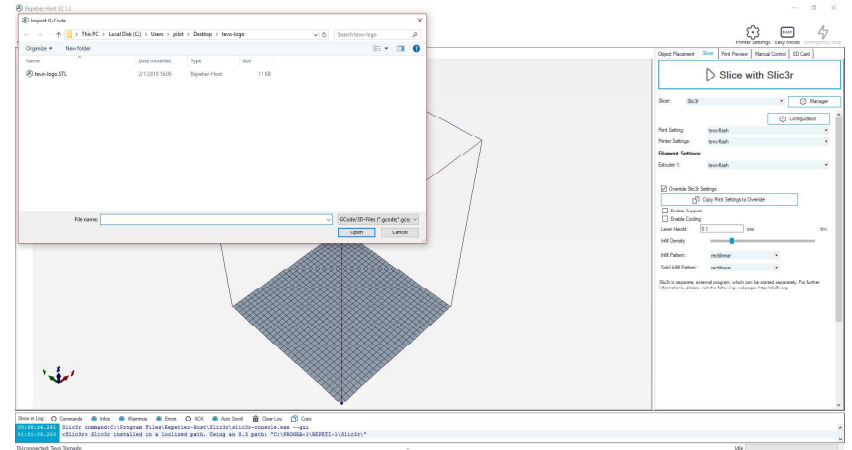
# Prepare Slicing Software



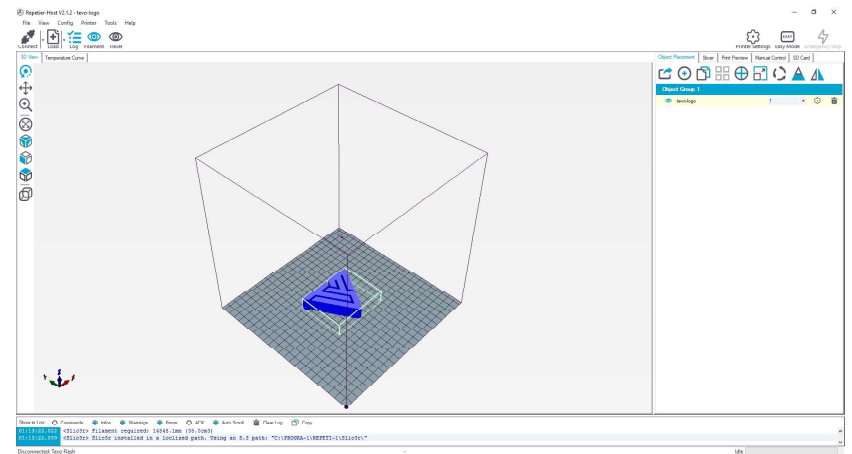
Click on Plater tab to go back to the main screen and do the same for others.

# How to Slice 3D Object for SD Print

Click on Load, browse to location of the file to print, then choose Open. (Or you can drop and drop the STL file to Repetier-Host software.)

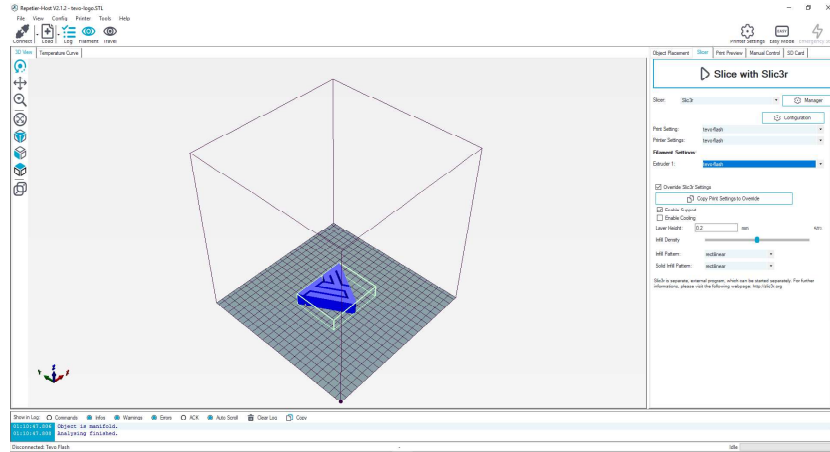


Click on Slicer tab on the right.

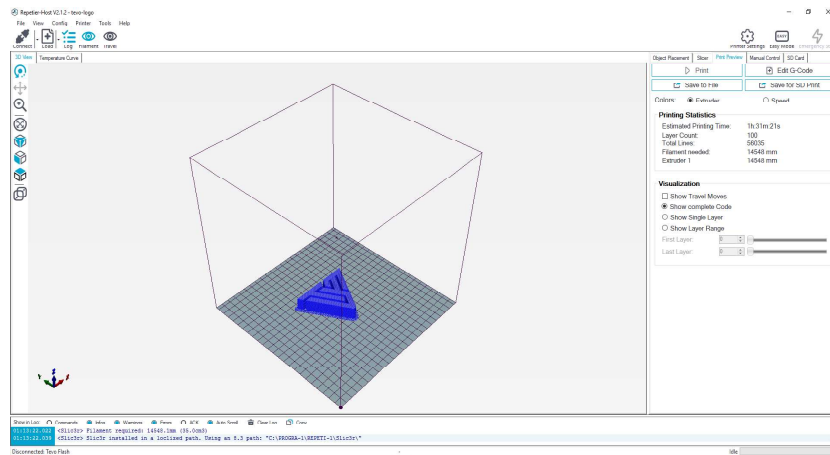


# How to Slice 3D Object for SD Print

Choose the config saved in previous step. Then click on Slice with Slic3r.



After slicing, click on Save for SD Print to save the G-code file to the SD card with file name of your choice. Then you can insert the card to your printer and choose Print from SD to start printing.



# How to Flash Firmware

To install firmware on your printer, you'll need to download the following:

1. Arduino IDE (<http://www.arduino.cc>).
2. Firmware Source Code (You can get it from many sources, e.g. our Facebook Page Files section, our Customer Service, Software Download page on <http://www.tevo.cn>, or from Marlin directly.)

In this chapter, we're going to use Marlin for demonstration. Configuration downloaded from our Facebook page, customer service, or software download page are pre-configured, you can use it without any modification. We're not going to go into details how to configure from scratch.

To start the process, do the following steps:

1. Connect your printer to your computer with USB cable supplied.
2. Double-click **Flash.ino** (or **Marlin.ino**) file to open it in Arduino IDE.
3. Select **Arduino/Genuino Mega or Mega 2560** from **Tools --> Boards** menu.
4. Select the serial (USB) port that your board is connected to in **Tools --> Serial Port** menu.
5. Click on **Verify/Compile** button at the top of the window to make sure there are no configuration errors. (If failed to compile, please make sure you are using Arduino IDE 1.8.5 or up.)
6. After it compile successfully, click on **Upload** button.
7. Waiting for Arduino IDE to show Done uploading.

# Tevo After-Sales

Dear Customer,

Thank you for purchasing Tevo 3D printer. We are dedicated to producing low price, high quality 3D printer and hope you have as much fun using it as we did creating it!

If you have any issue / questions regarding the contents in the kit, please fill out a Service Ticket on our Support page.

<http://support.tevoprinter.com>

Creating a Service Ticket will serve as your official request for Tevo support. Our Customer Support Team will contact you within 48 hours.

## SERVICE INFORMATION

### 1. REPLACEMENT PARTS

- 1.1. Tevo products are covered under a Replacement Part Program for a period of 12 months from the date of delivery.
- 1.2. Missing/Damaged/Defective Parts.
  - 1.2.1. Within 7 days of the delivery date, Tevo will replace any parts free of charge including shipping fees.
  - 1.2.2. After 7 days of the delivery date, Tevo will replace any parts free of charge BUT the customer will be responsible for shipping fees.
- 1.3. Customer Damaged Parts.
  - 1.3.1. The customer shall pay for the cost of the parts AND the shipping fees.

### 2. CARRIER LOSS, MISSING, DAMAGED, AND DEFECTIVE PARTS

- 2.1. Claims for lost or damaged shipments must be reported to the carrier within the carrier's claim window, the customer needs to inform Tevo within **7 days** of the delivery date.
  - 1.2.1. For any parts lost or damaged during shipping, the customer shall take photos or video and submit them when filling out a Service Ticket. If a claim number was issued by the carrier, please include the claim number when creating your Service Ticket (**Report a Problem / Carrier Lost Parts.**)

# Tevo After-Sales

2.1.2. Once the Carrier dispute is resolved, please provide Tevo with all communications with the carrier. It is the customer's responsibility to keep Tevo up-to-date with ALL communications with the carrier.

2.1.3. Tevo will work with the customer on replacing the parts in the claim.

2.2. For Missing Parts, refer to section 1.2, the customer shall fill out a Service Ticket (**Report a Problem / Missing Parts.**)

2.3. For Damaged Hardware Parts, refer to section 1.2, the customer shall take photos or video and submit them when filling out a Service Ticket (**Report a Problem / Damaged Hardware Parts.**)

2.4. For Defective Electronic Parts, refer to section 1.2, the customer shall take photos or video and submit them when filling out a Service Ticket (**Report a Problem / Defective Electronic Parts.**)

2.4.1. If the part is the LCD panel, Power Supply, or Mainboard, the customer shall ship the part back to Tevo and Tevo will send a new part.

2.5. For parts damaged by the customer, refer to section 1.3, the customer shall submit a Service Ticket (**Report a Problem / Customer Damaged Parts.**)

### 2. GENERAL SUPPORT

For information and support on building and operating your Tevo Flash 3D printer, please visit the Tevo Flash Official Group.

<https://www.facebook.com/groups/TEVO.Flash/>