



Model: Z9V5Pro (MK2)

# User Manual

The newest documents download link: <https://github.com/ZONESTAR3D/Z9>

# !! ATTENTION !!



Please strictly follow the standard operation when installation.



Please put the printer away from the reach of kids.



Must be guided by adults when children are installed or used.



Take care when installation, to avoid electrical shock hazards.



**Caution: Hot!**

Hotend has high temperature even the printer stop working.



**Caution: Hot!**

Hotbed has high temperature even the printer stop working.



Please keep well-ventilated condition! May produce toxic gases when printer working.

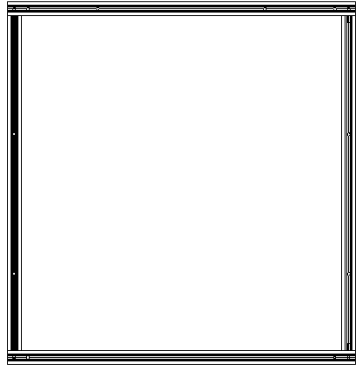


Please make sure you have set the AC power select switch to the correct position before power on.

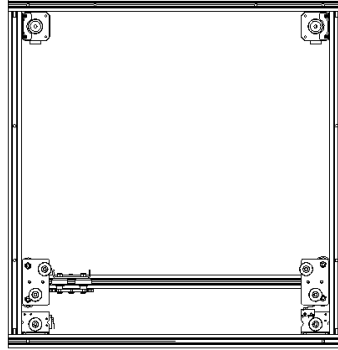


**Must load filament to all of the extruders, or use the hotend clean tool to close the empty channels of the mixing color hotend.**

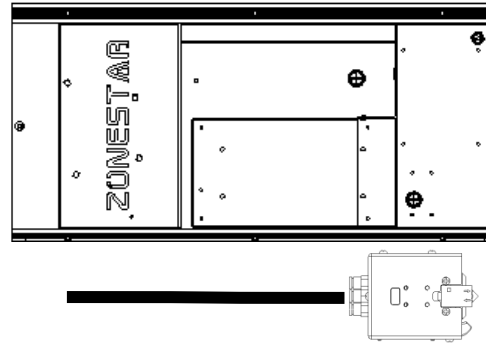
# Parts



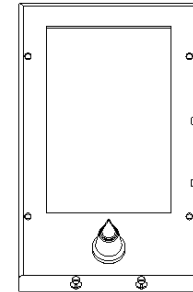
Bottom Assembly



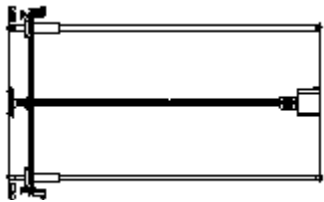
Top Assembly



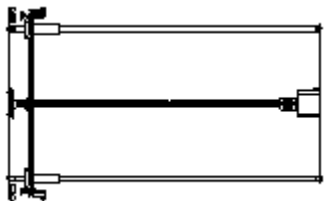
Controller Assembly  
and print head



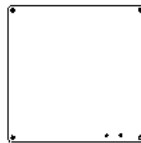
Control Panel



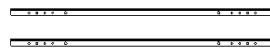
Z carrier Assembly  
- Left



Z carrier Assembly  
- Right



Hotbed



Hotbed  
Bracket



Filament  
Bracket



Hotbed  
glass

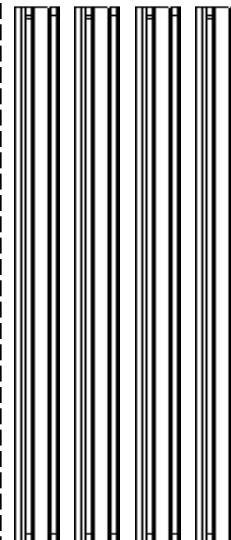


Clips  
(to fix glass)

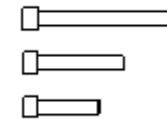


Hotbed  
screws /nuts

Hotbed parts



Z-axis Profile



M4x36 4PCS



M4x25 16PCS



M4x18 4PCS



Profiles cover



Cable tie



Tools



AC Power cord

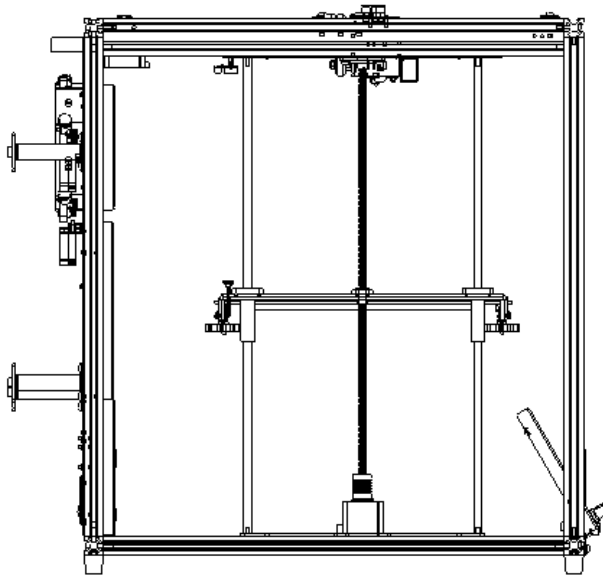


USB Cable

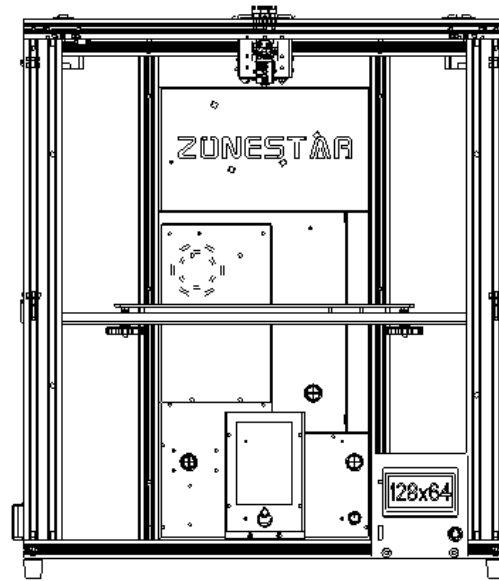


TF card/card reader

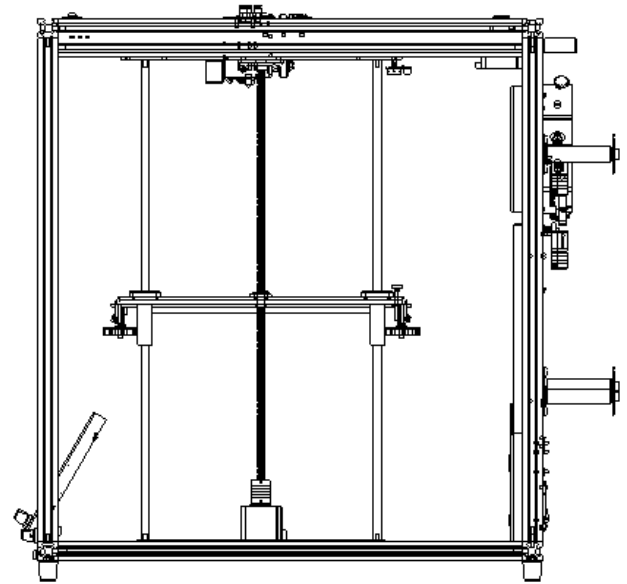
# Machine View



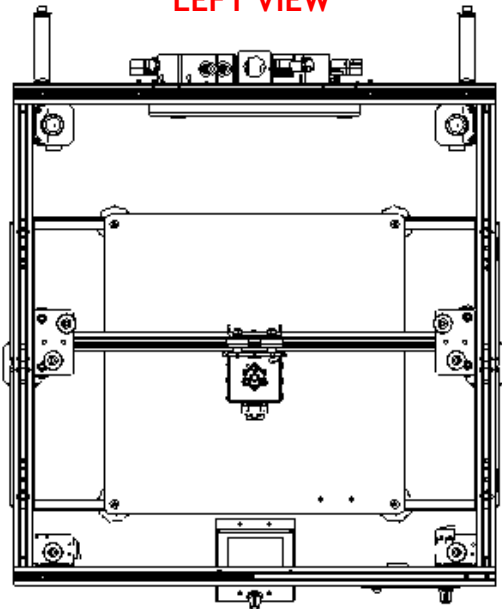
LEFT VIEW



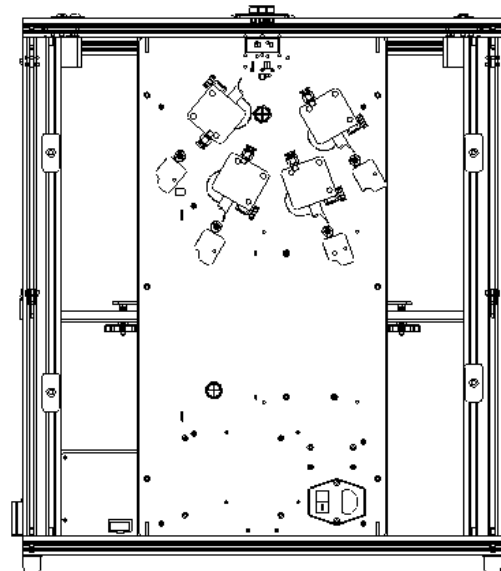
FRONT VIEW



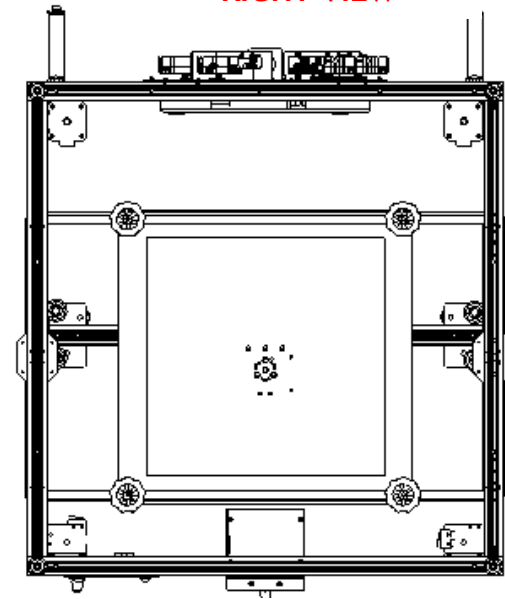
RIGHT VIEW



TOP VIEW

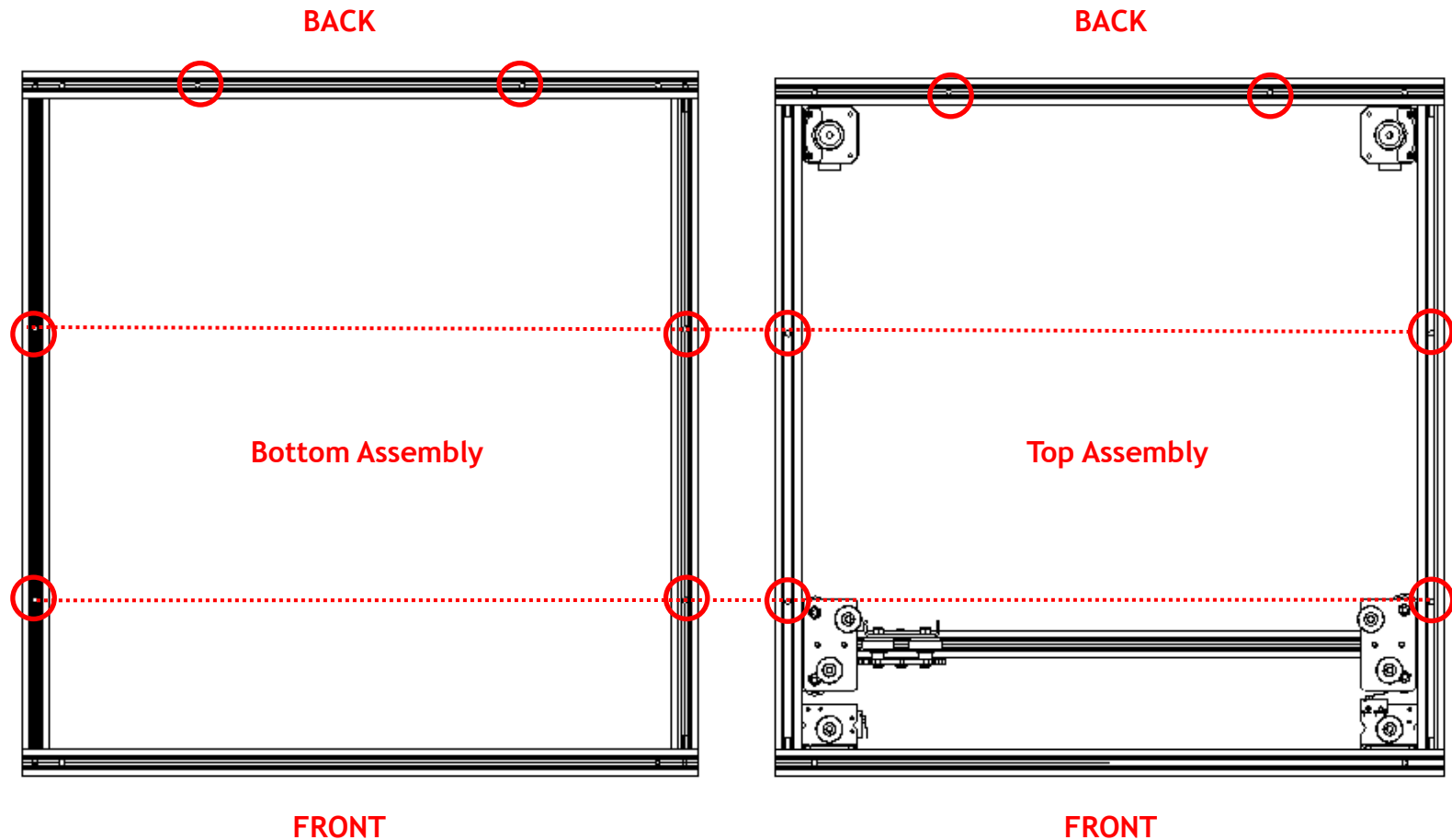


BACK VIEW



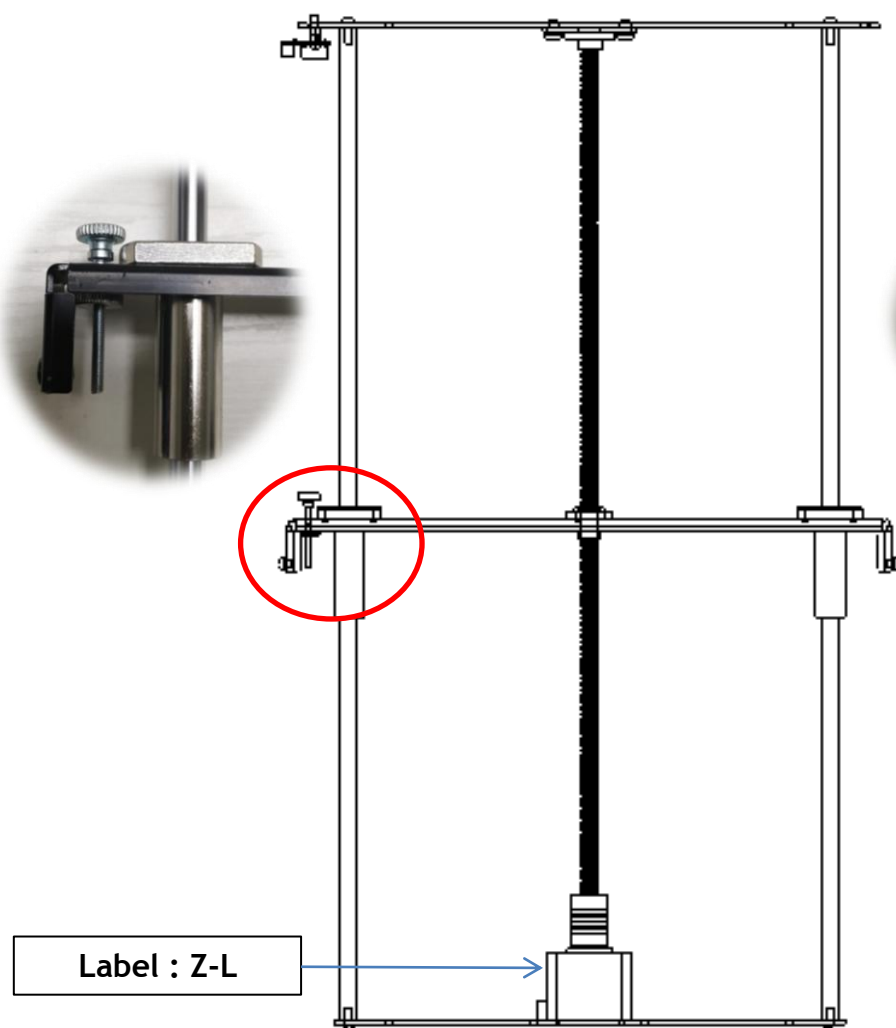
BOTTOM VIEW

# Direction of parts

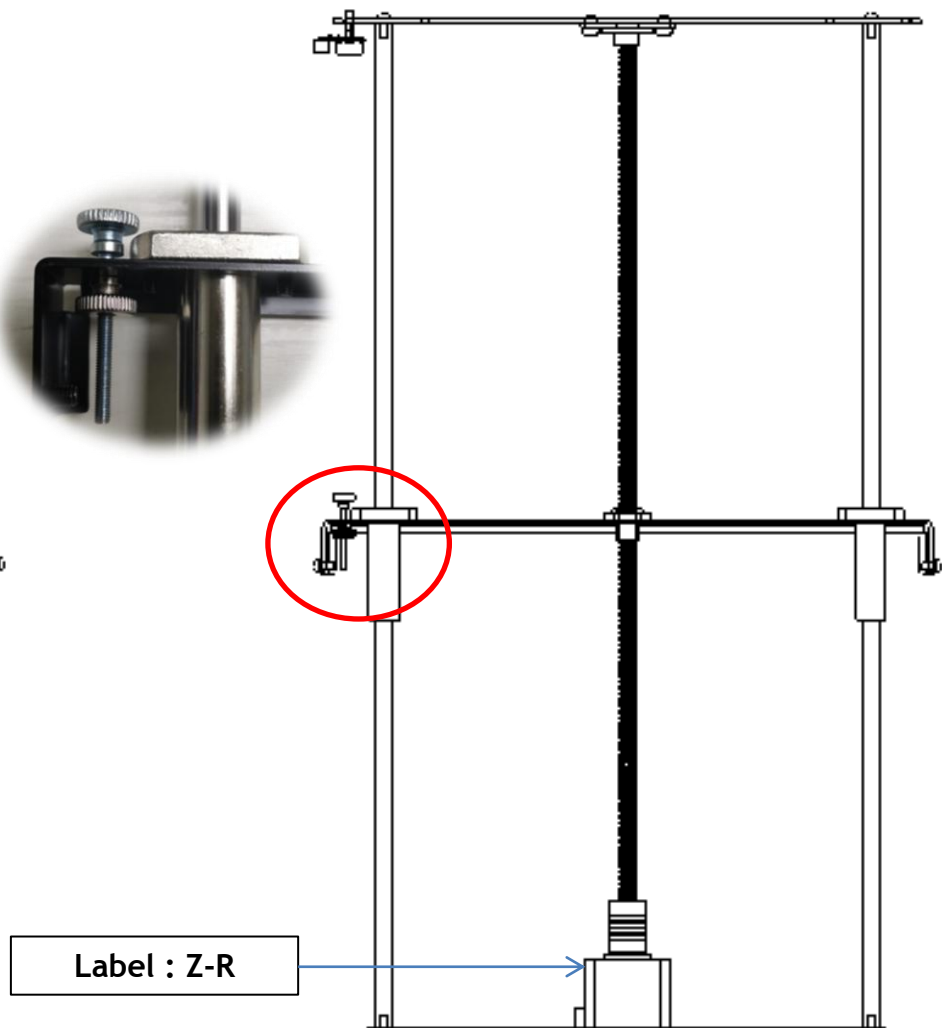


**NOTE: Pay attention to the distinction between FRONT and BACK!!**

# Direction of parts



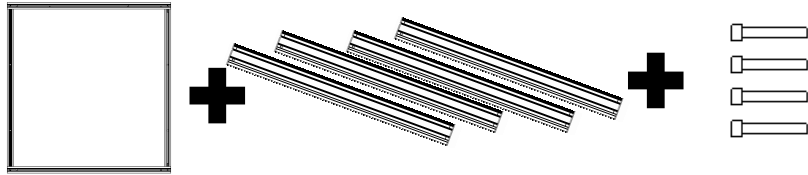
Z carrier assembly - Left



Z carrier assembly - Right

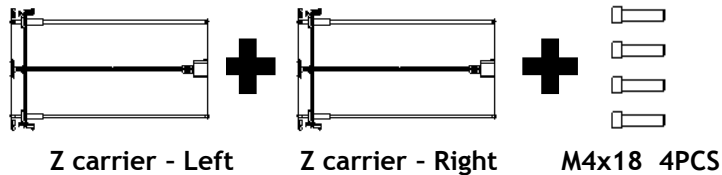
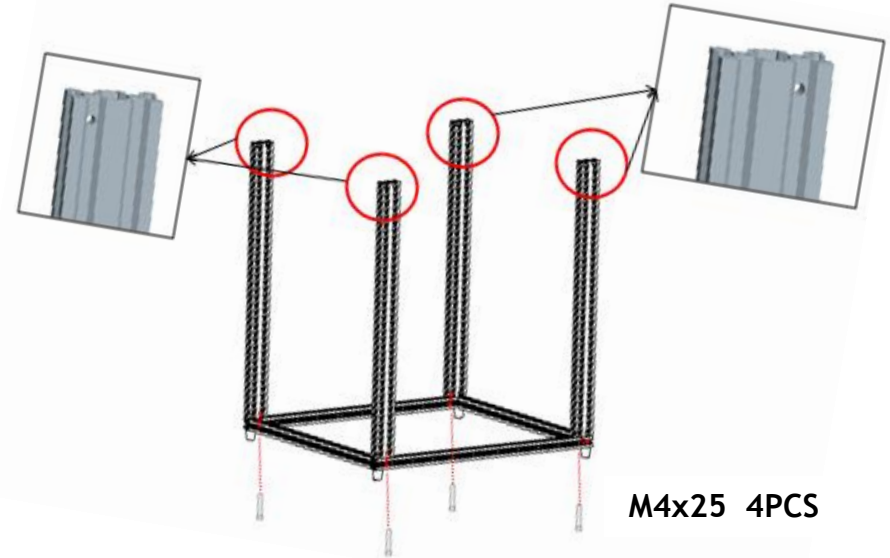
**NOTE: Pay attention to the distinction between LEFT and RIGHT.**

# Assemble



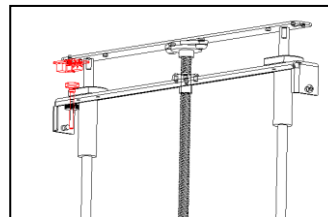
Bottom Assembly    Z profiles (4x2040)    M4x25 4PCS

**NOTE:** Pay attention to the hole on the Z profile, it should be on the top and out

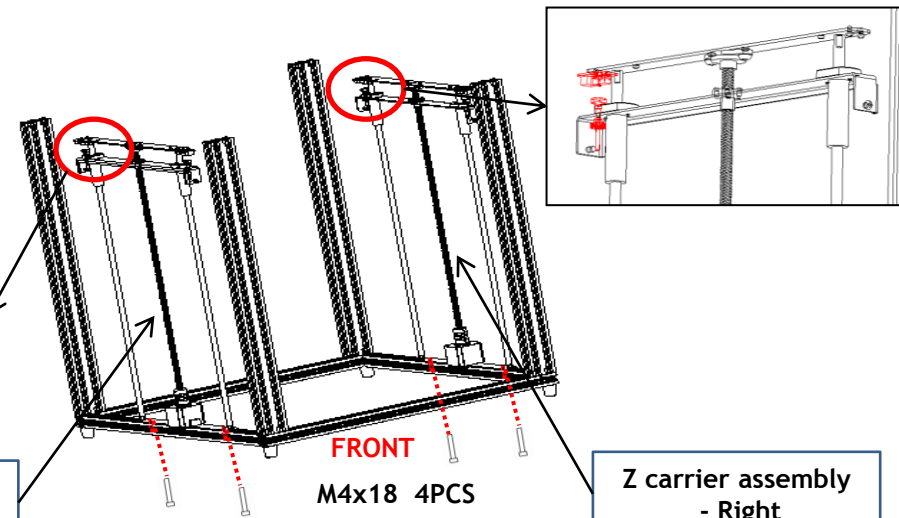


Z carrier - Left    Z carrier - Right    M4x18 4PCS

**NOTE:**  
Pay attention to distinguish  
Z carrier Assembly - Left and  
Z carrier Assembly - Right

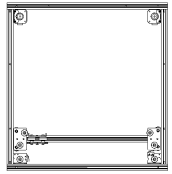


Z carrier assembly  
- Left

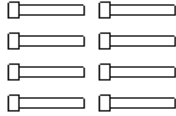


Z carrier assembly  
- Right

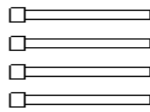
# Assemble



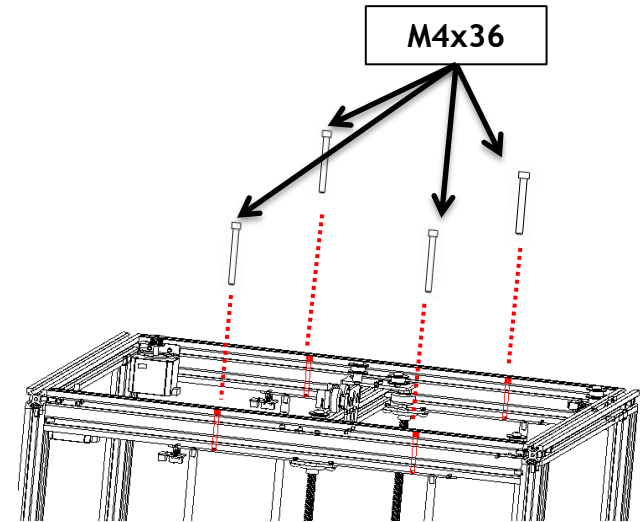
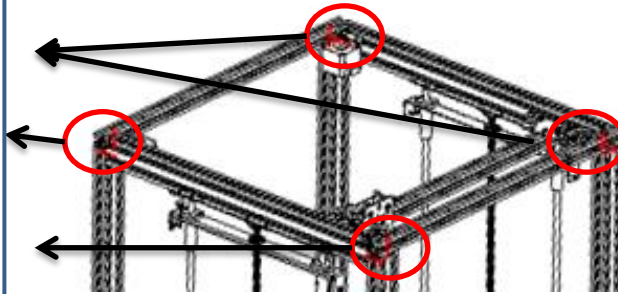
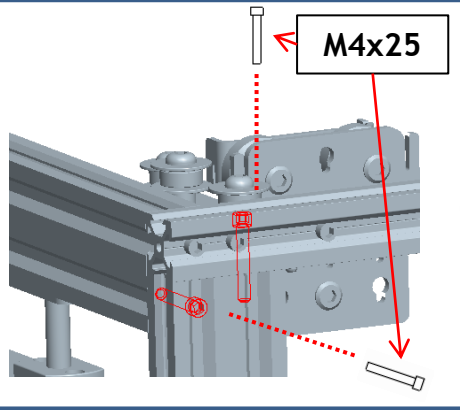
Top assembly



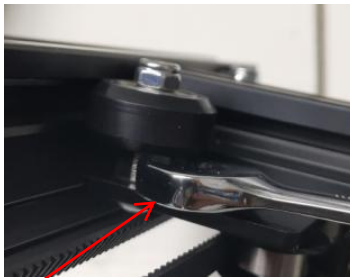
M4x25 8PCS



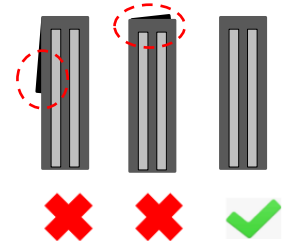
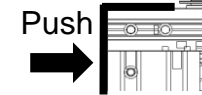
M4x36 4PCS



**ATTENTION!!**



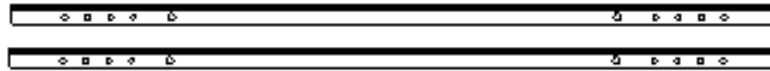
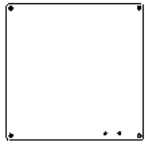
**NOTE:** Adjust the eccentric column so that the x-axis can not shake left and right. It is okay if there is a little gap.



**NOTE:** Ensure that the profile on the top 2 sides is flush with the z-axis profile



# Assemble



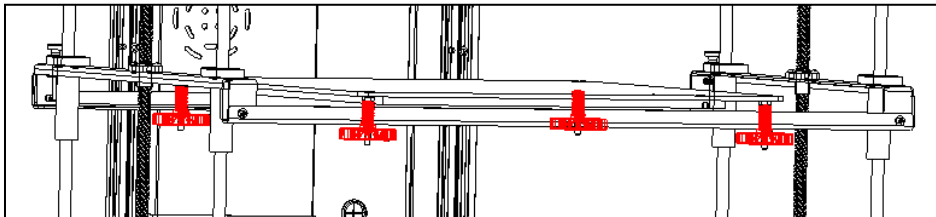
Hotbed Bracket



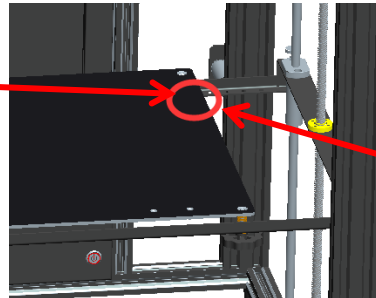
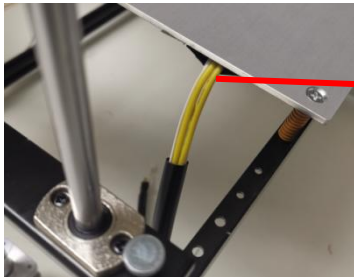
Hotbed screws



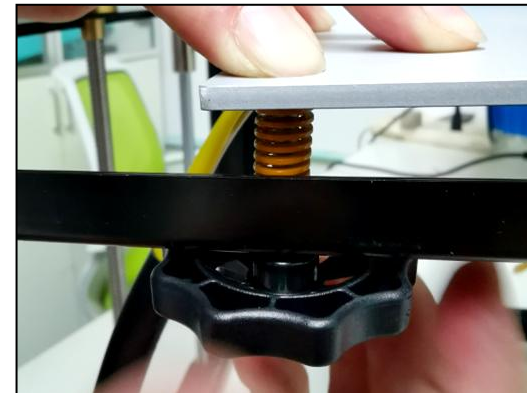
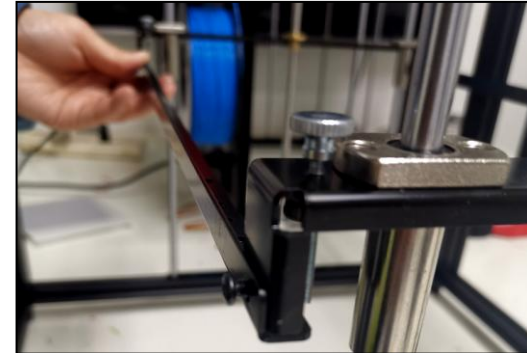
Take down these M4 screws first and then tighten hotbed bracket on the Z carriers



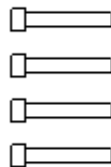
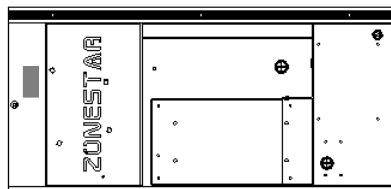
Install springs and hand nuts for hotbed



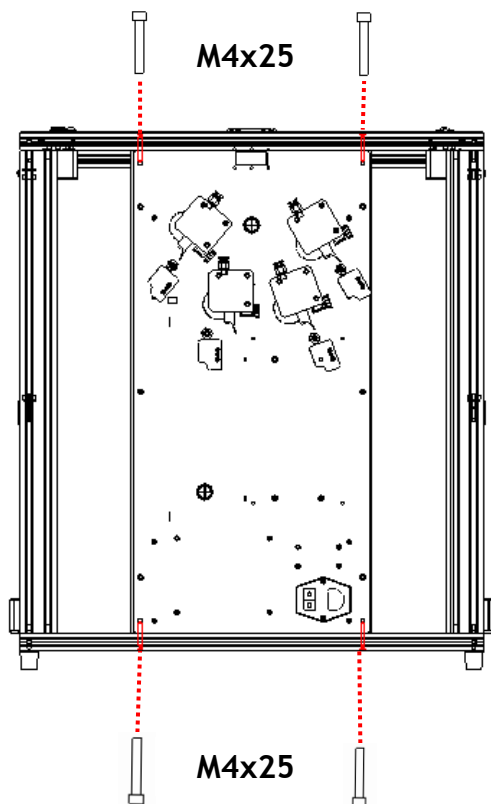
Put the hotbed cable to the left-back corner



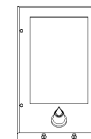
# Assemble



M4x25 4PCS



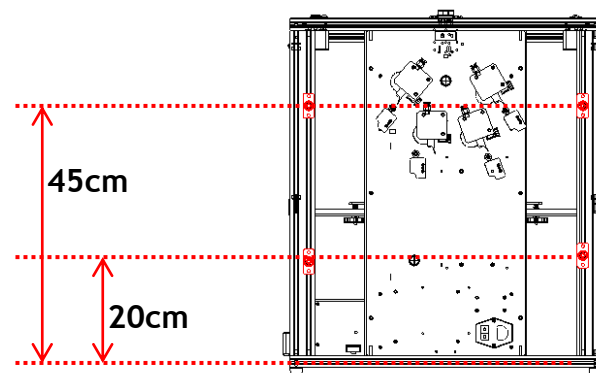
Install the control box assembly  
to the back of frame



Install control panel to the  
bottom-front profile

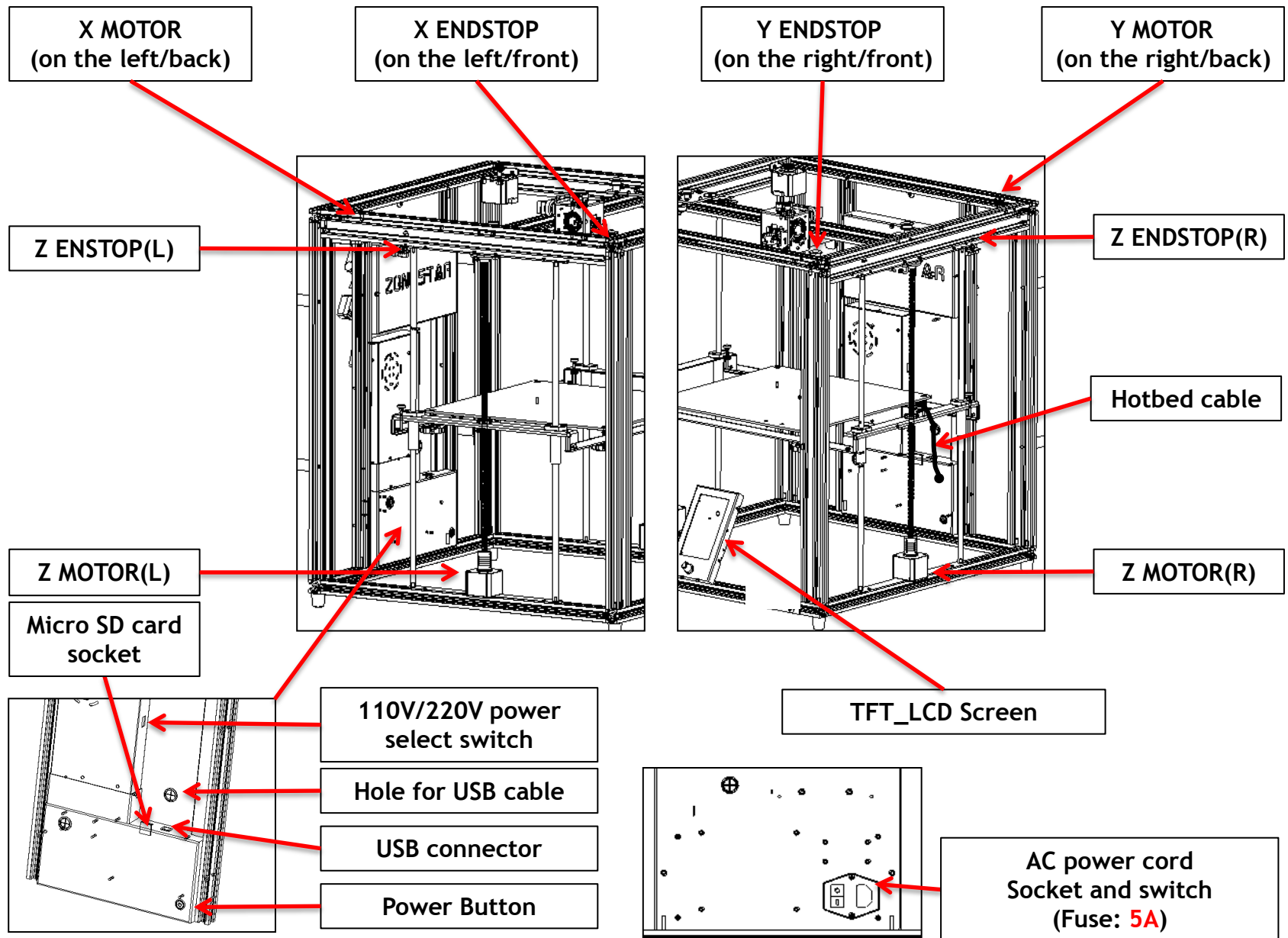


Filament Bracket

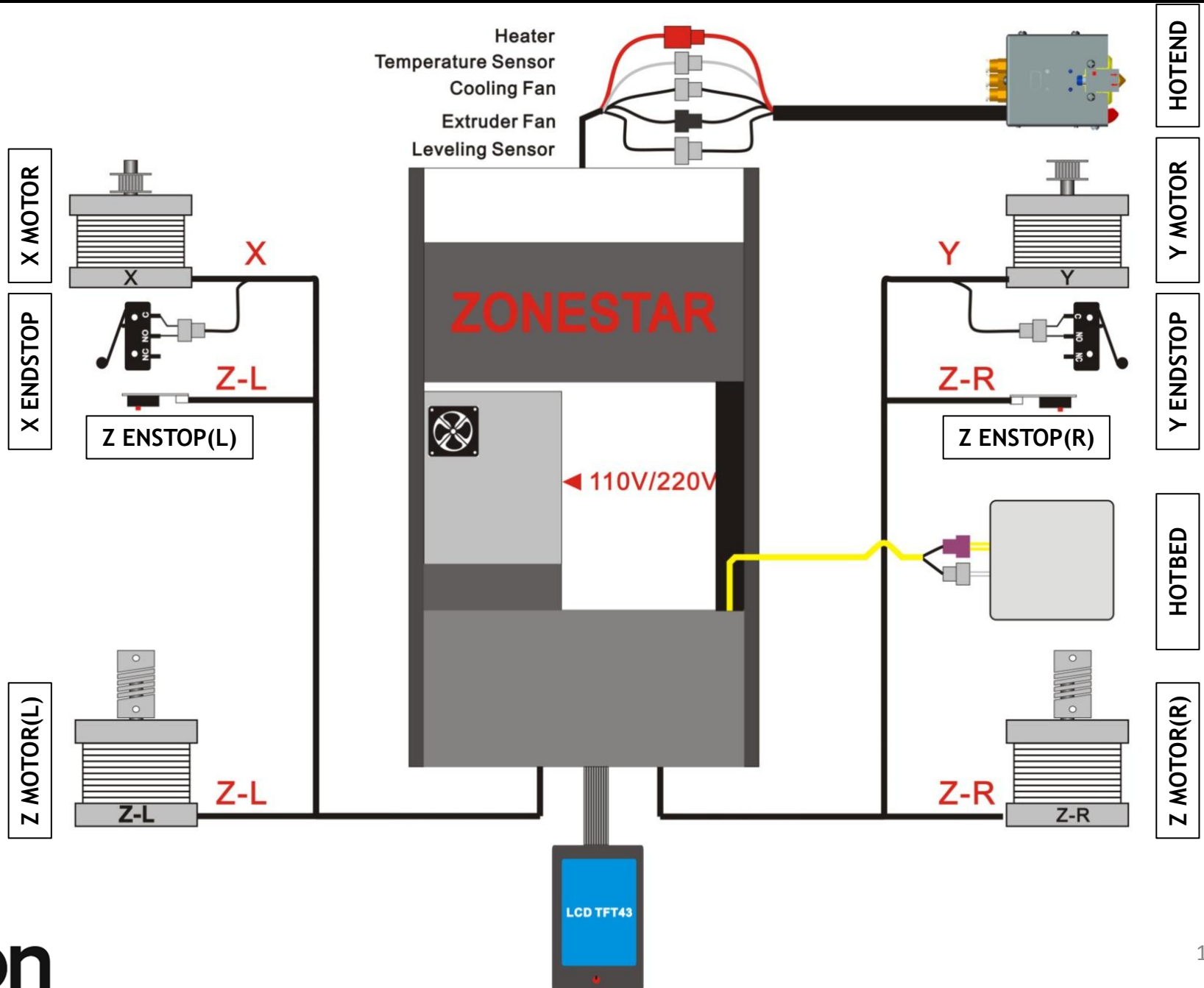


Install filament bracket to the back Z profile

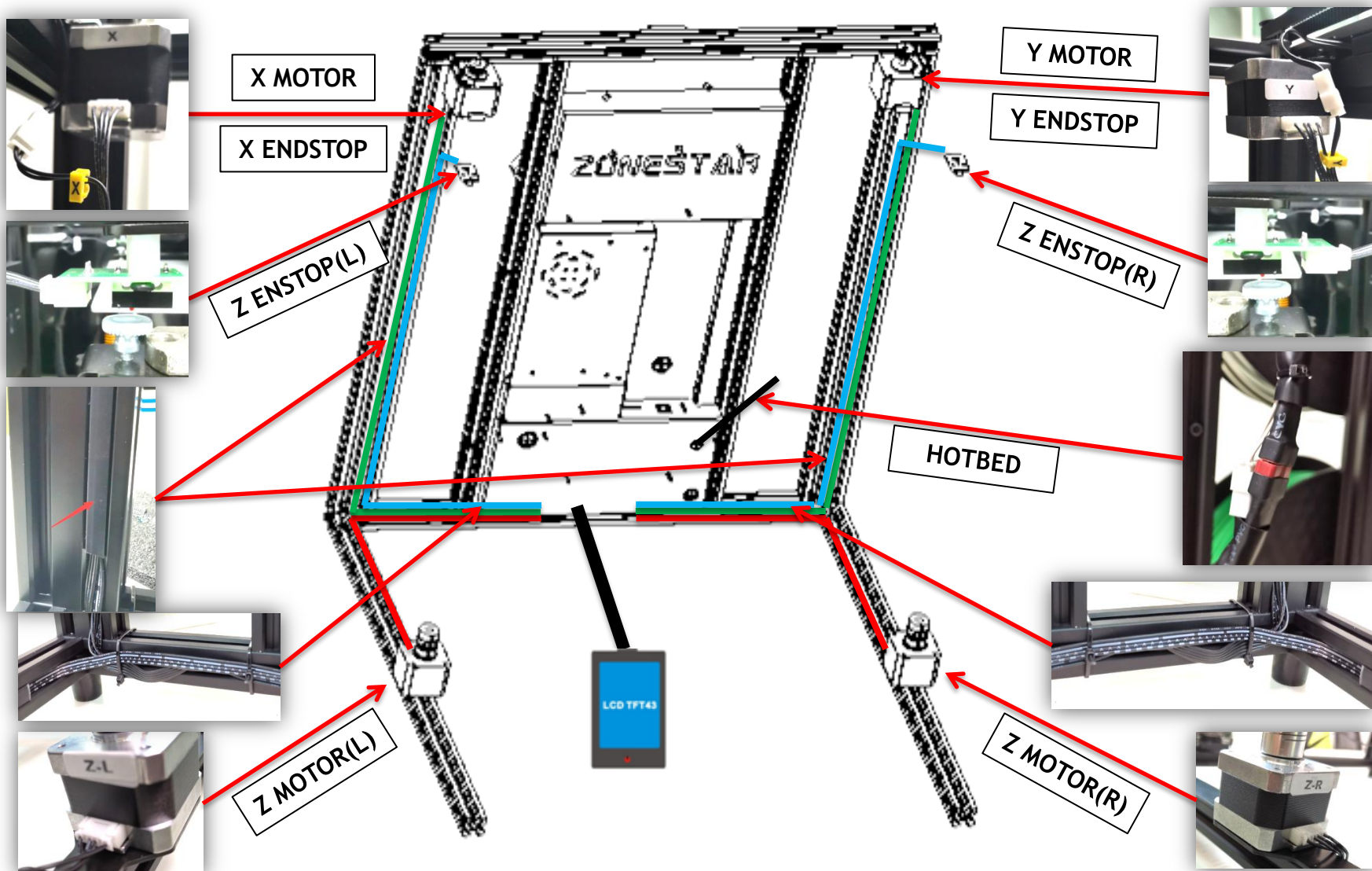
# Wiring - about the electronics parts



# Wiring Block



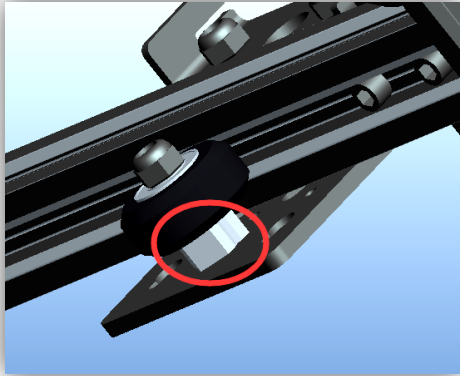
# Wiring and layout the wires



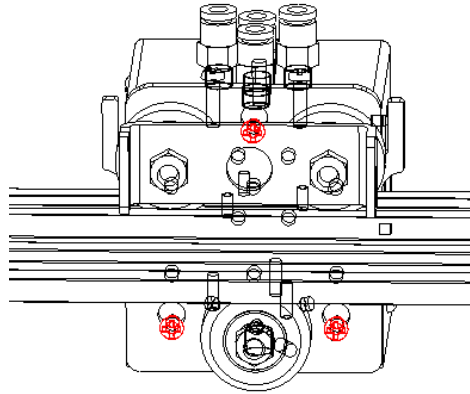
**NOTE:** Put the wires into the groove of profile, and cover with profiles cover.  
**ATTENTION:** Be careful to damage the insulation of the wires!!!



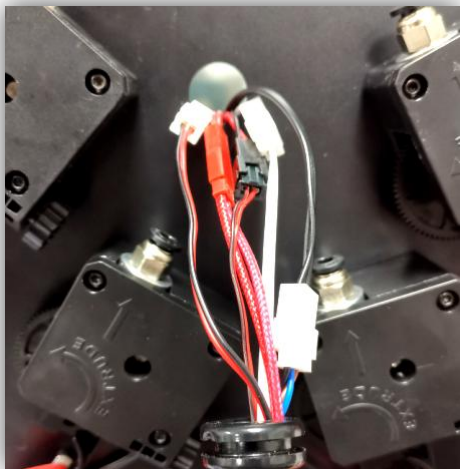
# Install and wiring the print head



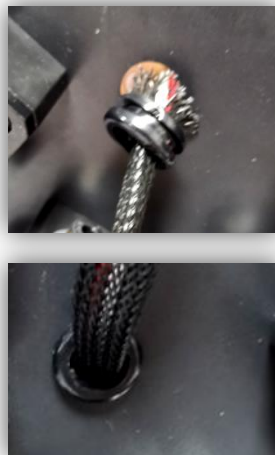
Check and adjust the eccentric column to make the X carrier hold the x-axis profile



Loosen the 3 pcs of M3x6 screws and then tighten it to mount the print head



Following the color of connector and wires to wiring the hotend



Insert the wires into the control box

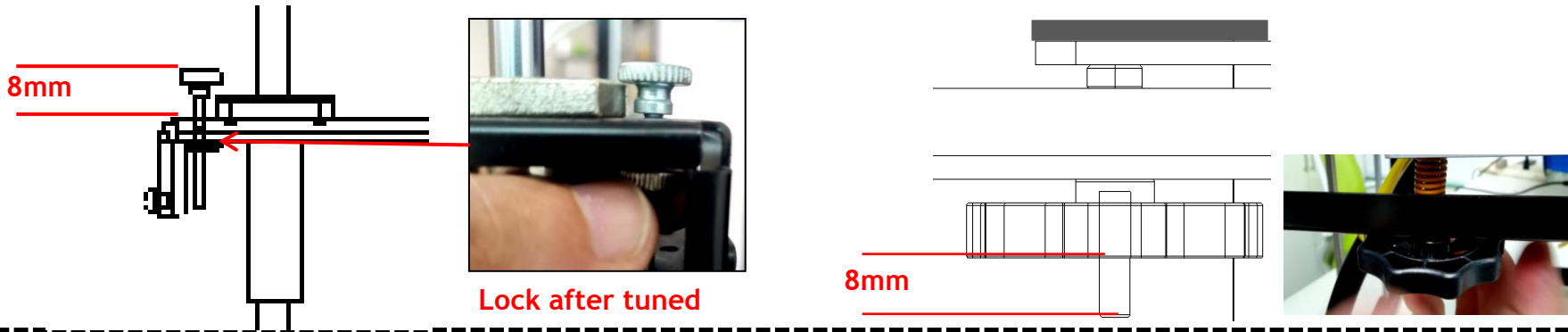


Plug the PTFE tube into the extruder feeder  
E1 corresponds to the center channel of hotend and hotend , E2~E4 to the others channel.

**Note: It is not necessary to distinguish E2 ~ E4**

# Install the glass and fine tune the Z height adjustment screws

Fine tune the Z height adjustment screws (left + right) and hotbed screws (4 corners) refer to the below picture



Fix the glass (super base) on the heat bed

1. Remove the hot bed protective film.
2. Fix the glass on the aluminum plate with clips(Fig1), recommend to It is recommended to arrange the clips at the front and rear corners of the hot bed (Fig2).
3. One side of the glass is coated and the other side is smooth. Using the coated surface, the print can be firmly adhered to the platform; Using a smooth surface, you can get a smoother bottom of the print.



Fig1

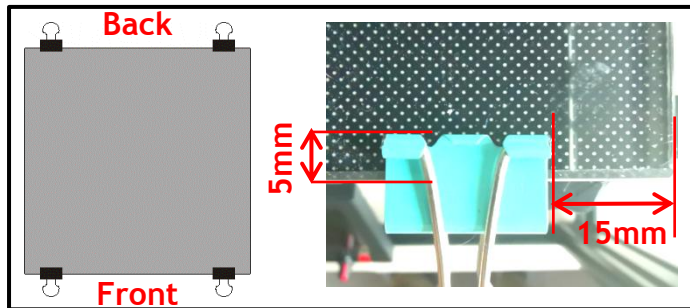


Fig2

**Coating surface face up:**

Hotbed temperature:  $>50^{\circ}\text{C}$   
First layer printing speed:  $<35\text{mm/s}$   
First layer thickness:  $\geq 0.2\text{mm}$

**the smoother surface face up**

Hotbed temperature:  $>70^{\circ}\text{C}$   
First layer printing speed:  $\leq 20\text{mm/s}$   
First layer thickness:  $\geq 0.4\text{mm}$

Fig2

# Power ON / Power OFF

**!!ATTENTION!!**

**MAKE SURE THE AC VOLTAGE SELECT SWITCH HAS BEEN SET TO THE CORRECT POSITION**



Please confirm whether the switch is set correctly before turning on the power. If your city power voltage is AC 90V ~ 120V, please set this switch to 110V, otherwise set to 220V. If this setting is incorrect, the fuse in AC socket will be damaged.

## POWER ON



Plug in AC power cord and turn on the power switch

Push and hold the DC power button

**hold** the button until the LCD shows logo

## POWER OFF



.....



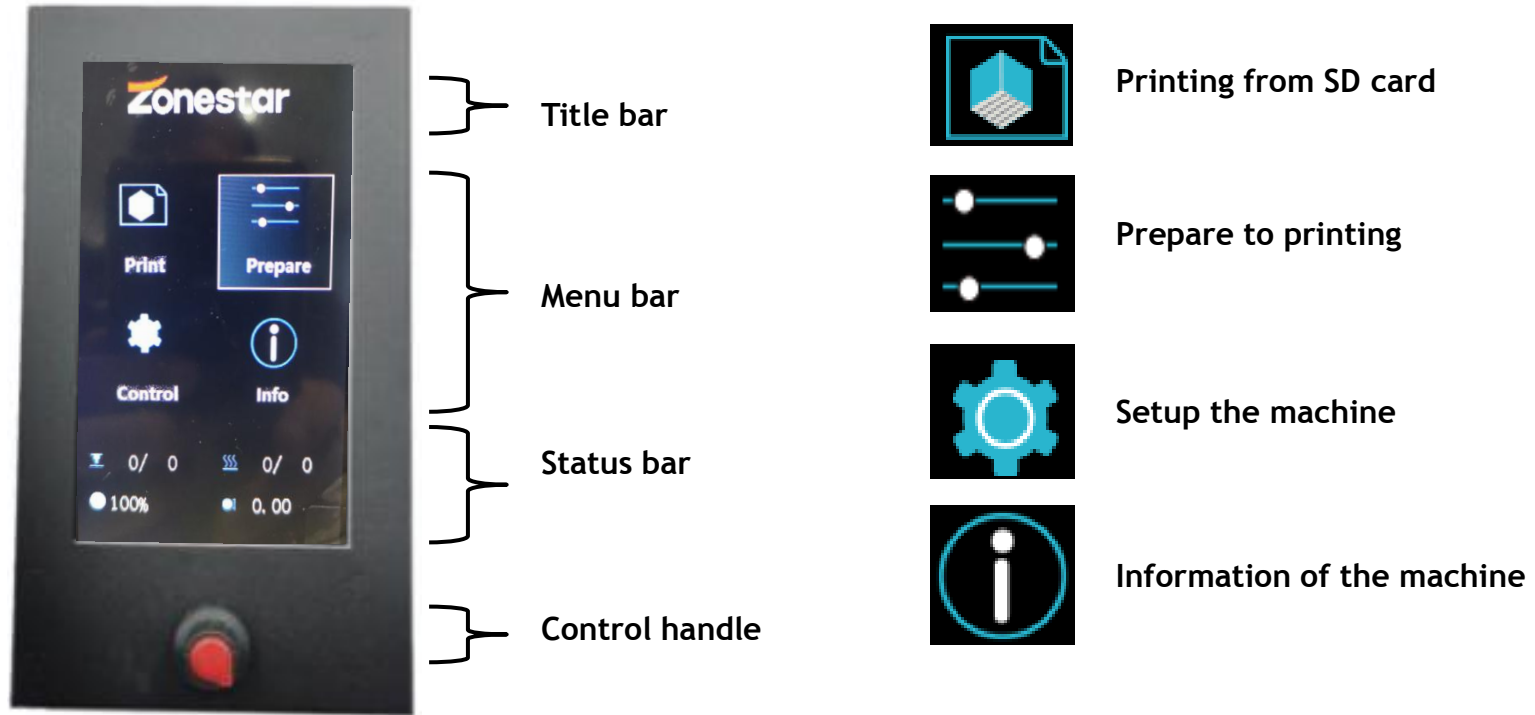
Do "Power Off" on control panel

Wait the LCD screen off

Turn OFF AC Power Switch



# LCD Menu and Operation



For details on the TFT-LCD menu, please refer to "[LCD\\_DWIN Menu Description.pdf](#)".

# Prepare to print - Level the hotbed

1. Power on the 3d printer and then do “**Prepare>>Auto Home>>Home All**” on control panel, wait the hotend go to the HOME (origin) position.
2. Watch the nozzle, tighten the hand nuts under the bed to move down or loosen these nuts to move up the bed **(Fig 1)**, let the nozzle is higher than the bed about 1~2mm.
3. Do “**Prepare>> Bed leveling>> Point 1(2/3/4)**” on control panel**(Fig 2)**, the nozzle will go to the corners of the bed, adjust the hand nuts under the hotbed and let the nozzle almost touch the hotbed **(Fig 3)**. Continue to do the next point until all of the 4 corners has been leveled.
4. Repeat step 3 (recommend to do 3 rounds at least), until all of the four corners at the same height.

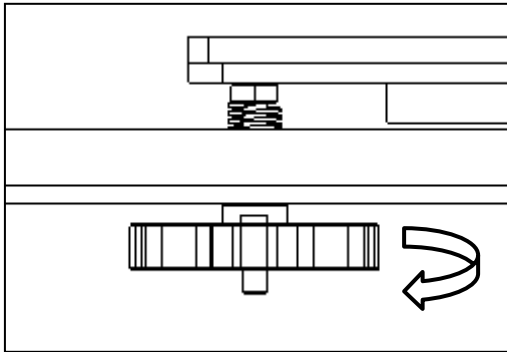


Fig 1

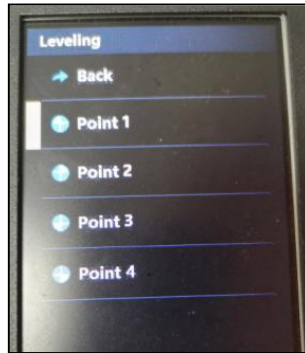


Fig 2



Fig 3

# Prepare to print - Load Filament

1. Check the hotend, make sure only the center channel of the hotend connected “filament guide” and the others channels has been closed by hotend clean tools (Fig 1).
2. Do “*Prepare>>Auto Home>>Home All*” on control panel, and then do “*Prepare>>Temperature>> Preheat PLA*”, waiting nozzle Temperature reached to 190 °C (Fig 2).
3. Use a diagonal pliers to cut off the head of filament (Fig 3), and then press the handle of the *extrude feeder #1* and insert filament, push the filament until you can see the filament in the guide (Fig 4).
4. Rotate the gear of extrude feeder #1 (Fig 5), watch the filament until it enter the hotend. Continue to rotate the gear **slowly** and watch the nozzle, until you can see the filament flowed out from the nozzle (Fig 6).

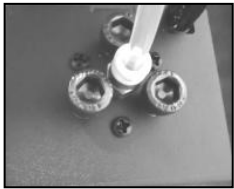


Fig 1



Fig 2

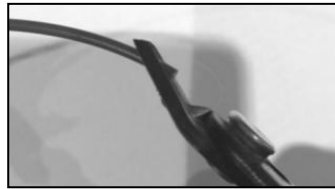


Fig 3

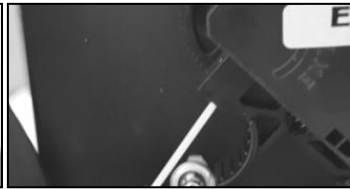


Fig 4



Fig 5



Fig 6

## NOTE:

1. We have only open one channel of the hotend when the printer left the factory, so please load one filament the hotend in your first prints.
2. Before loading more than one filament to the hotend, please read this guide first “Mix Color HOTEND User Guide- load and unload filament.pdf” file in the SD card

# Print your first work

1. Insert the SD card to the SD card socket on the printer (**Fig 1**).
2. Click “Print” on the control panel and choose “**Test gcode\xyz\_cube.gcode**” (**Fig 2**), click the knob to start printing.
3. Wait until the hotend and hotbed is reached to the setting temperature (**Fig 3**), the nozzle will home to the origin position and then move to above of the printing platform and extrude the filament, use a tweezers to remove the outflow filament (**Fig 4**).
4. Double click the knob on the control panel to open a “**Babysteps**” menu (**Fig 5**), rotate knob slowly to fine tune the height of printing platform, watch the distance from nozzle to bed, until the distance is well (**Fig 6**). Wait the printing finished, you will get your first works (**Fig 7**).
5. Wait the hotbed cool ( $\leq 25$  degree) (**Fig 8**), and then remove the printed object from the hotbed glass(**Fig 9**).



Fig 1

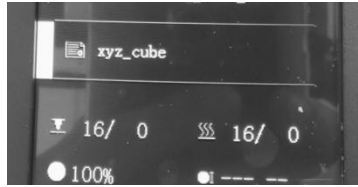


Fig 2

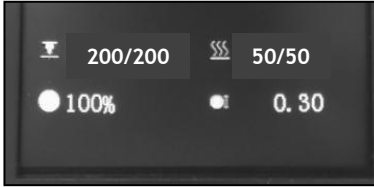


Fig 3



Fig 4

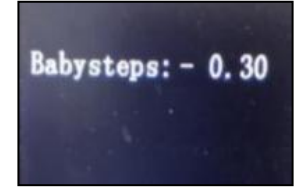


Fig 5

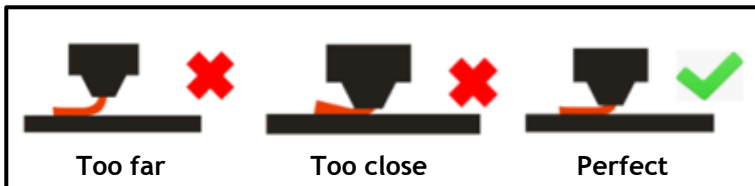


Fig 6



Fig 7

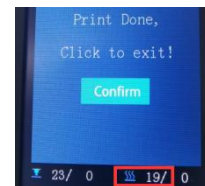


Fig 8

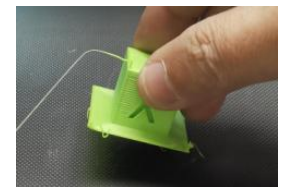


Fig 9

# Slicing

## About slicing

Slicing a 3D drawing translates the 3D drawing into a language that a 3D printer can understand and print. The slicing software is a computer software used in the majority of 3D printing processes for the conversion of a 3D object model to specific instructions for the printer. In particular, the conversion from a model in **STL(Obj, Amf)** format to printer commands in **g-code** format. This machine can use a variety of slicing software to complete slicing. We will now introduce the most commonly used slicing software: **Cura**.

**NOTE:** 1. Slicing software is not a part of this machine. 2. You can download Cura for free from the internet.

## Install slicing software and step up the printer

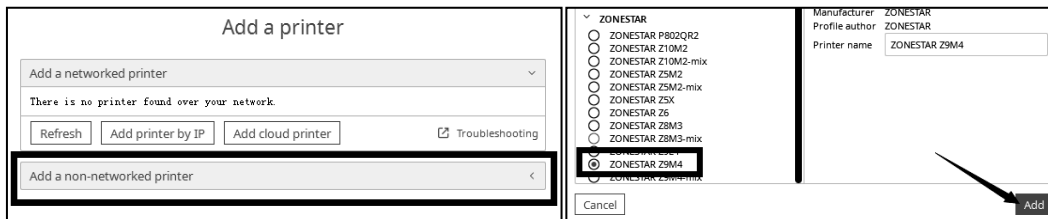
In order to run the slicing software, you need a PC or laptop, installed windows/linux/Macos.

**Step 1:** Download and install **Cura** to your PC, please search “ultimaker cura” from google.

**Step 2:** Copy “cura resources.zip” from the SD card and unzip it to your PC.

**Step 3:** Copy “resources” file to the same directory in cura which you installed.

**Step 4:** Run **cura** software, and follow the below steps to choose the printer.

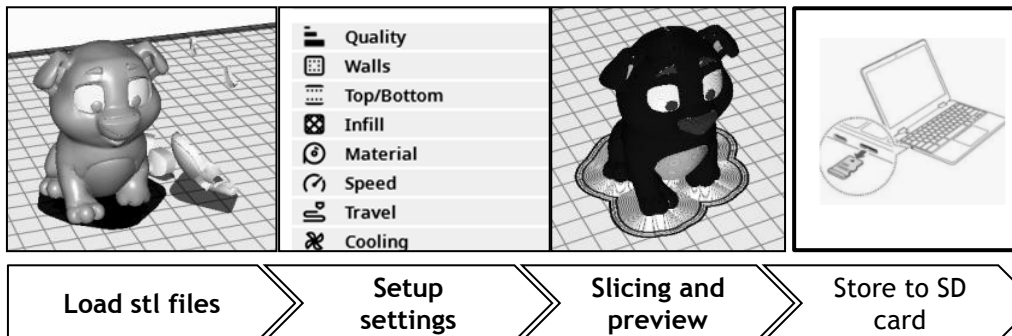


Download  
Cura



Download  
Slicing Guide

## Slicing process



**NOTE:** For description of slicing, please refer to the documents in the directory of “slicing guide”.

# Advance features

**NOTE: Do not turn on these functions until you clearly understand how to use them and precautions.**

## ◆ Auto retract feature:

The strings issue of the mixed color hot end is often more serious than that of the single color hotend. Therefore, an automatic retraction feature is set in the firmware. Using automatic retraction can improve this problem. For the detail please refer to [How to set auto retract function.pdf](#).

## ◆ Filament run out detection feature:

This printer is equipped with 4 *filament run out sensors*. With these sensors, the printer can pause the printing while one of the filament spool used up, and when you load a new roll filament, you can continue to print. For the detail please refer to [How to set filament runout function.pdf](#).

Switch on: MENU>>Control>>Configre>>Runout Sensor

## ◆ Power loss recovery feature:

While printing from SD card and power is lost, after power on again, the printer will resume to print from the last layer which printed before power lost. For the detail please refer to [Power loss recovery feature user guide.pdf](#).

Switch on: MENU>>Control>> Configre>>PowerLoss Recovery

## ◆ Auto power shut down feature:

While printing from SD card and the work is finished, the printer will auto shut down after about 3 minutes. For the detail please refer to [How to set auto shutdown function.pdf](#).

Switch on: MENU>>Control>> Configre>> Auto Shutdown

## ◆ Bed auto leveling feature:

This printer is equipped with a *Bed leveling sensor (PL-08N)*, with this sensor, you can correct the unevenness of the hot bed. . For the detail please refer to the guide in [“Bed Auto Leveling Feature”](#).

Switch on: MENU>>Control>> Configre>> Auto Leveling

## ◆ Auto mixing color feature:

Default Z9V5Pro is equipped with a 4-IN-1-OUT mixing color (M4) hotend, it has a gradient/random mixing engine to convert singel color gcode file to a gradient color object. For the detail please refer to [How to set gradient color printing.pdf](#) and [How to set random color printing.pdf](#).



# Wiring Diagram(Z9V5Pro)

## Z9V5 Wiring Diagram

Control Board: ZM3E4

Pink block is for upgrade features

