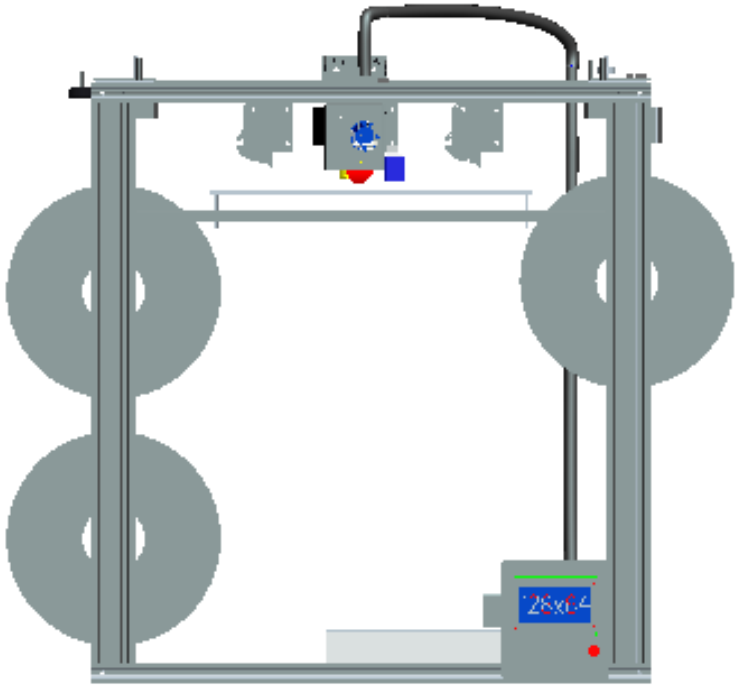
Zonestar



Model: Z9M4

User Manual

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

Symbols

- **Extruder:**
  The system to carry out Feeding-Melting-Stacking in FDM 3d printer.
- **Extrusion feeder:**
  A mechanism to transport filament to the hot end.
- **Titan Extruder:**
  A special remote extrusion feeder with deceleration structure, it can reduce the torque requirements in the stepper motor.
- **3D printer filament:**
  In order to facilitate the work of 3D printer, plastic materials are pre processed into filaments. The commonly used types include PLA, ABS, PETG, TPU, PC, AAS, HIPS, PVA, WOOD, Carbon Fiber, etc..
- **Hotend:**
  The part to melt the filament.
- **Nozzle:**
  The outlet at the front end of the HOTEND, usually made of copper and has a small size hole for flow out filament.
- **Print head:**
  It means the **Hotend** and its attached cooling system.
- **Printing platform:**
  The device supporting the printed object.
- **Hotbed:**
  Heatable printing platform.
- **Sticker (of hotbed):**
  A special stickers pasted on the **Hotbed** are usually made of high temperature adhesive tape or PC film.
- **Bed Automatic leveling:**
  A function of automatically measuring and adjusting the distance between nozzle and printing platform.
- **Control panel:**
  The system that realizes human-machine interface in 3D printer.
- **CoreXY:**
  A special motion structure with two motors and belt to drive the X-axis and Y-axis together, it is appiled in Z9M3.
- **Motor Driver Module:**
  An electronic function module to drive stepper motor.
- **Mixer:**
  The parts and software to realize the color mixing function.
- **HOTEND Clean tool:**
  A screw with a small rod which can be used to clean the feeding channel at the hot end or close the unused channel.

!! 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.

For mixing color printer, must load filament to all of the extruders, even if you print single color 3D object.

Parts List

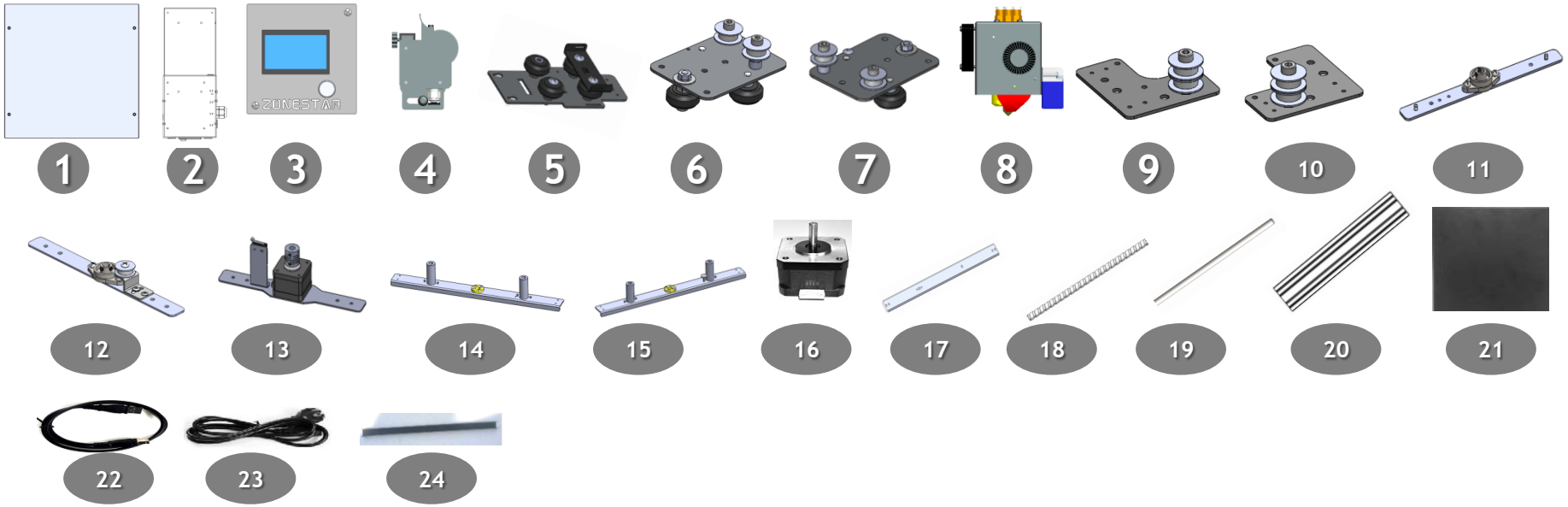


Fig	Name	Qty.	Check
1	Hot Bed	1 PC	☐
2	Control box	1 Set	☐
3	Control Panel	1 Set	☐
4	Titan Extrusion feeder	4 Set	☐
5	X Carrier	1 Set	☐
6	Y Carrier -left	1 Set	☐
7	Y Carrier-right (with a screw on the top)	1 Set	☐
8	Hotend	1 Set	☐
9	belt bracket - left	1 Set	☐
10	belt bracket - right	1 Set	☐
11	Left Z slider-rod bracket	2 Set	☐
12	Right Z slider-rod bracket bottom	1 Set	☐

Fig	Name	Qty.	Check
13	Z axis drive componen	1 Set	☐
14	Z-axis left slider	1 Set	☐
15	Z-axis right slider (**with a hand screw**)	1 Set	☐
16	Stepper Motor for X and Y	2 PCS	☐
17	Hotbed bracket	2 PCS	☐
18	T8 lead screw	2 PCS	☐
19	slider rod	4 PCS	☐
20	Aluminum profile	13 PCS	☐
21	Hotbed film	1 PC	☐
22	USB Cable	1 PC	☐
23	Power cord	1 PC	☐
24	*Profile cover*	2 PCS	☐

Parts List

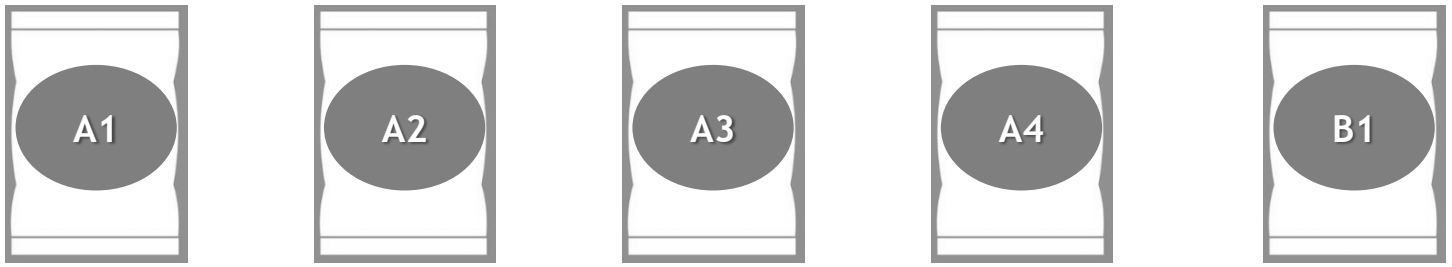
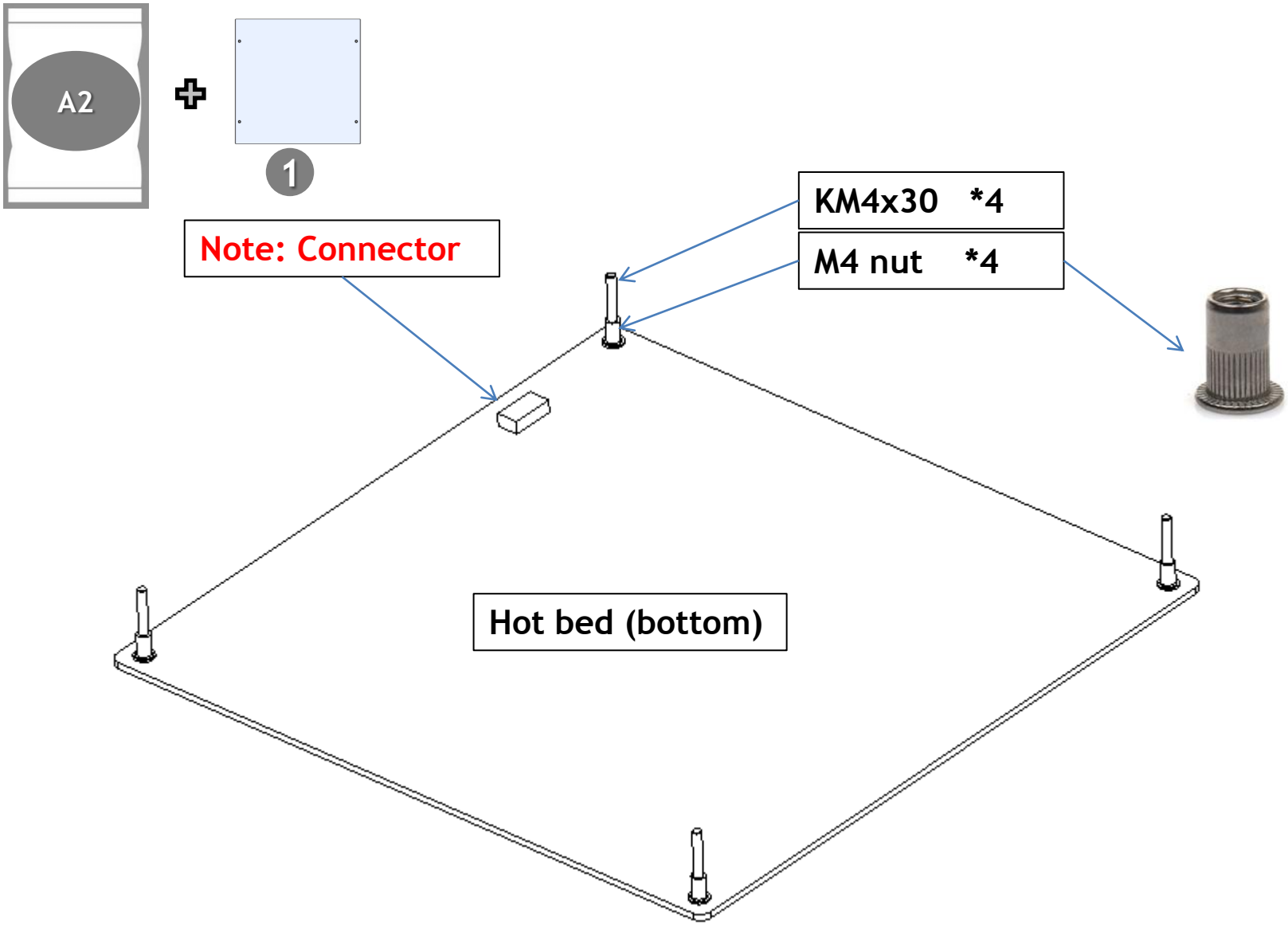


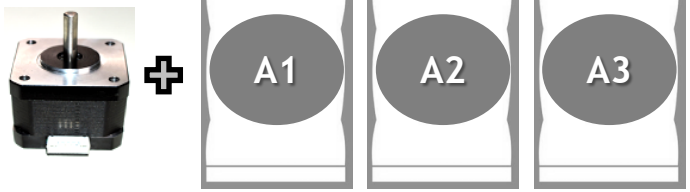
Fig	Name	Description
A1	Metal brackets	1. X-axis motor bracket 2. Y-axis motor bracket(with ENDSTOP) 3. Filament roll dock
A2	Screws	Screws for assembled
A3	Other parts	1. Closed timing belt for Z-axis synchronize 2. Open timing belt for X and Y axis 3. Timing pulley for X,Y and Z-axis 4. Filament guide tubes and fittings 5. Cable ties 6. Rubber Pads
A4	SD card & Gift	**User guide stored in SD card**
B1	Tools	Tools for DIY assembled

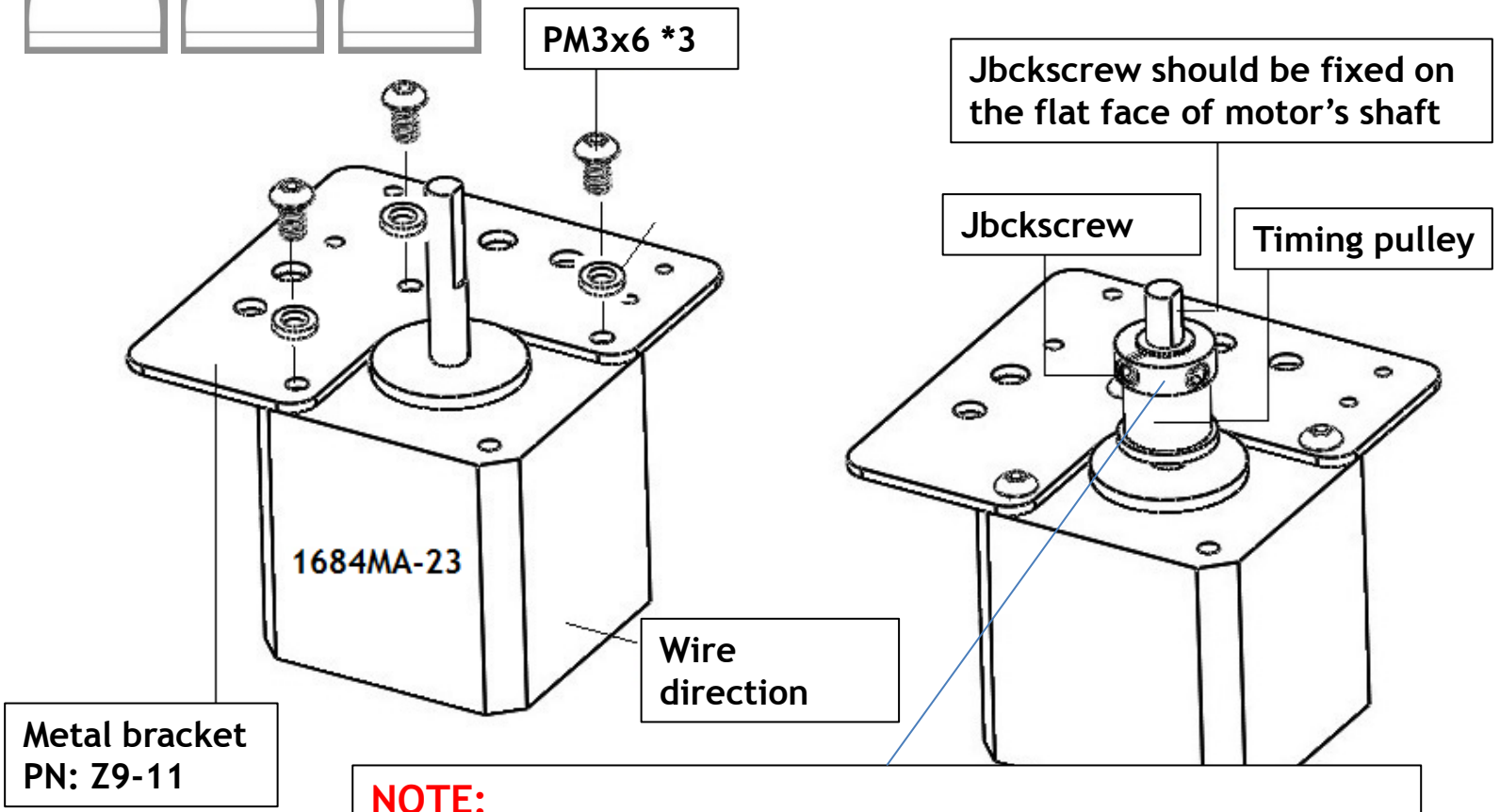
Zonestar

Assemble hot bed



Assemble X drive components



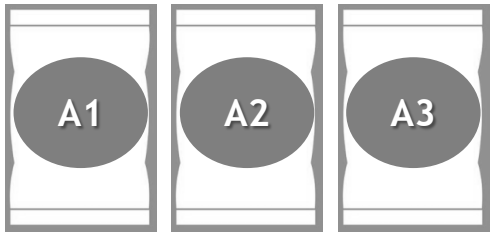


NOTE:

1. Timing pulley's inner diameter is 5mm.
2. The platform of the timing pulley is on the top.

Zonestar

Assemble Y drive components



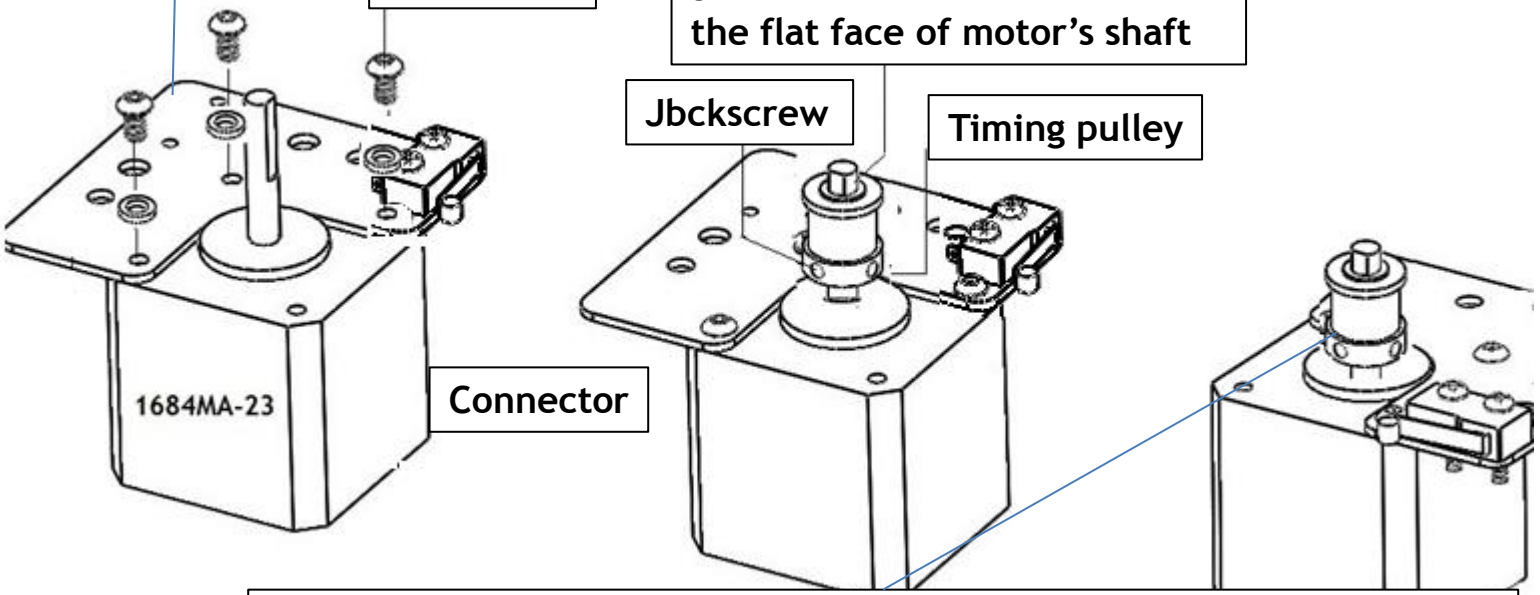
Metal bracket
PN: Z9-11

PM3x6 *3

Jbckscrew should be fixed on the flat face of motor's shaft

Jbckscrew

Timing pulley



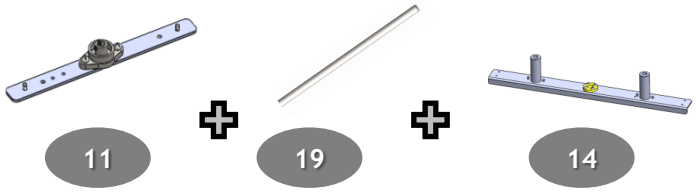
Connector

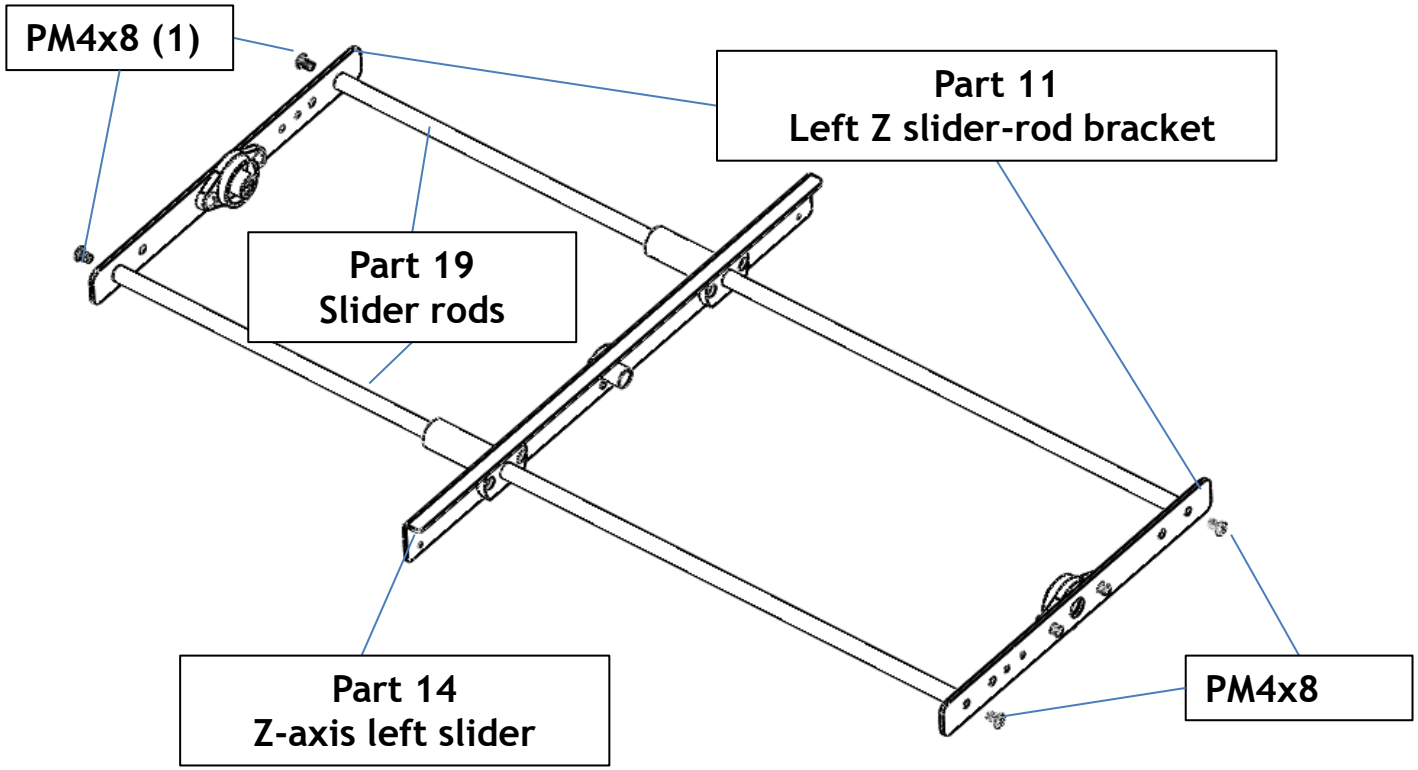
NOTE:

1. Timing pulley's inner diameter is 5mm.
2. The platform of the timing pulley is on the bottom.

Zonestar

Assemble Z axis drive mechanism- left

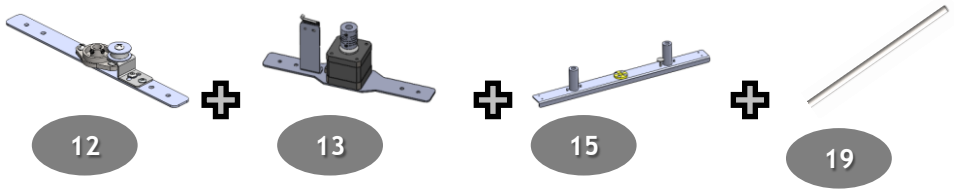


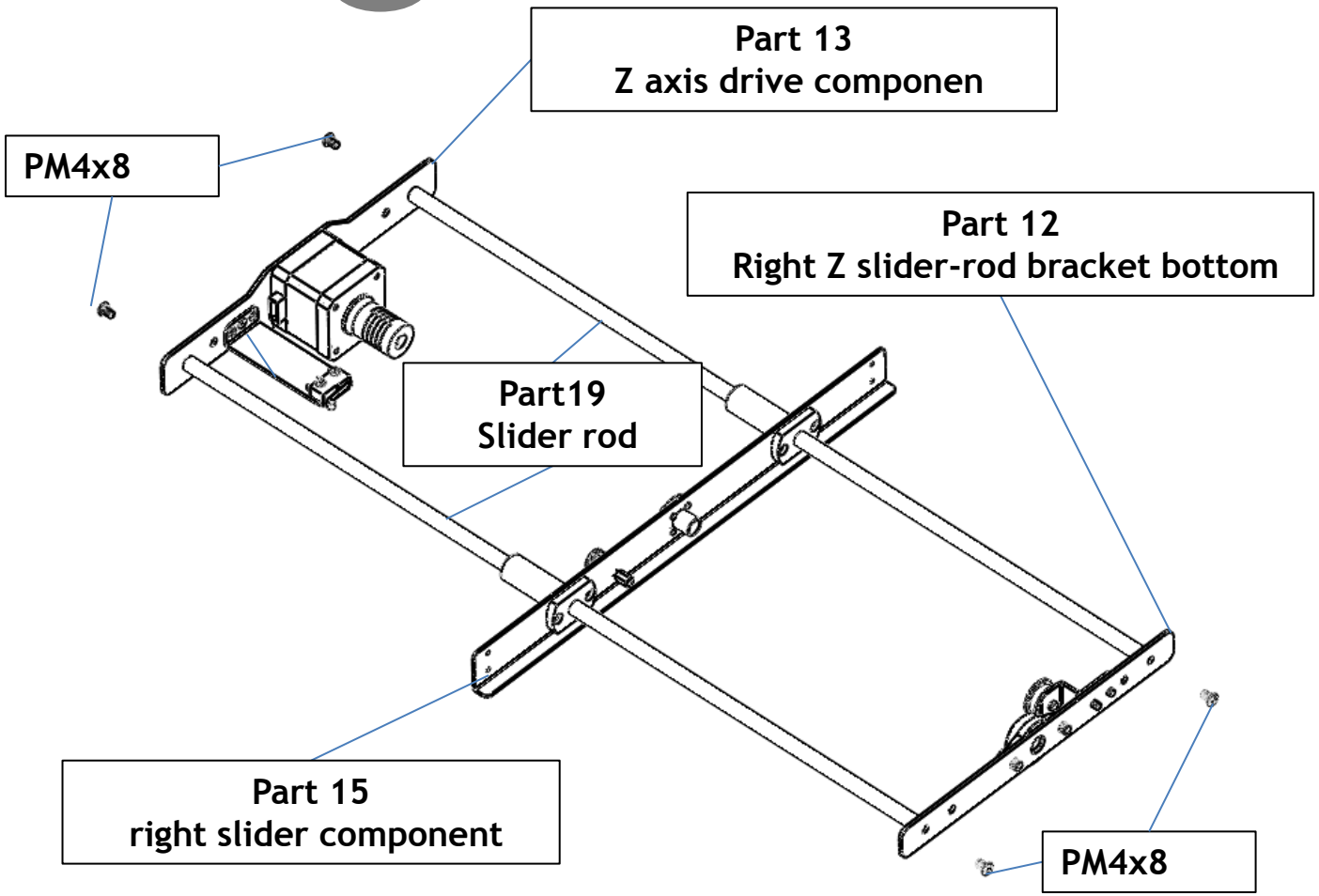


NOTE: Disassmbled the PM4x8 screws from end of the rods before installed it.

Zonestar

Assemble Z axis drive mechanism- right

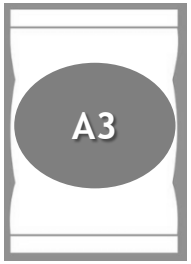




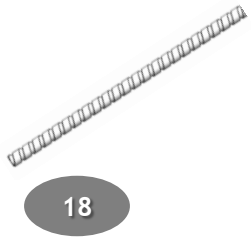
NOTE: Disassmbled the PM4x8 screws from end of the rod first before installed it.

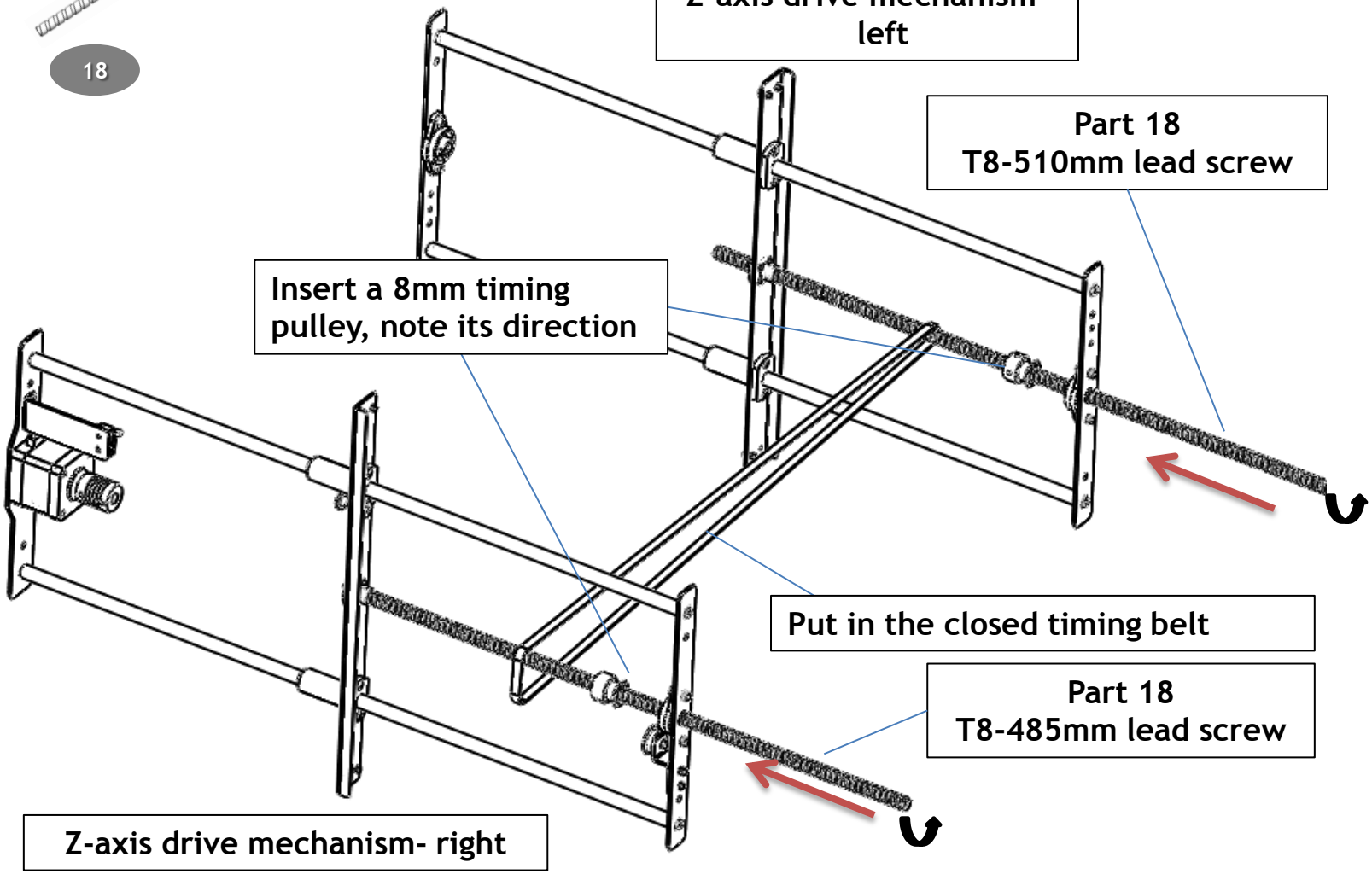
Zonestar

Assemble Z axis drive mechanism



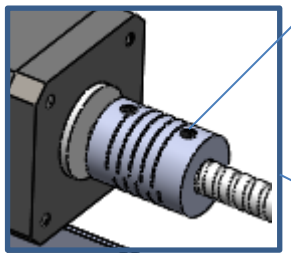
+





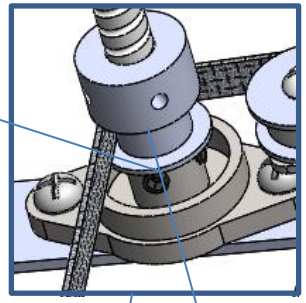
Assemble Z axis drive mechanism

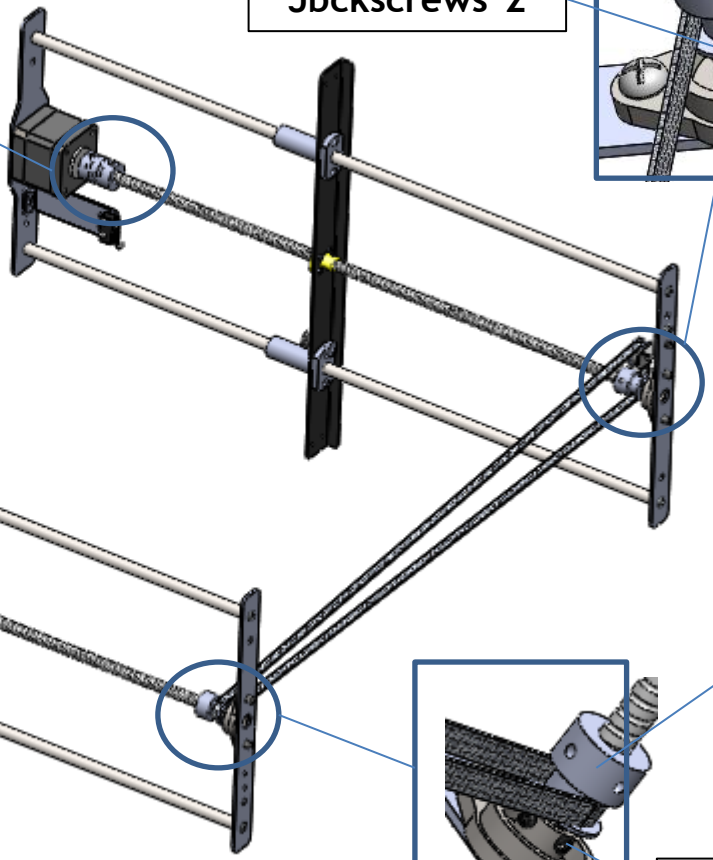
Jbckscrews*4



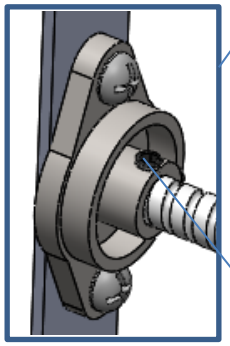
Spin in the lead screw and lock the jbckscrews

Jbckscrews*2





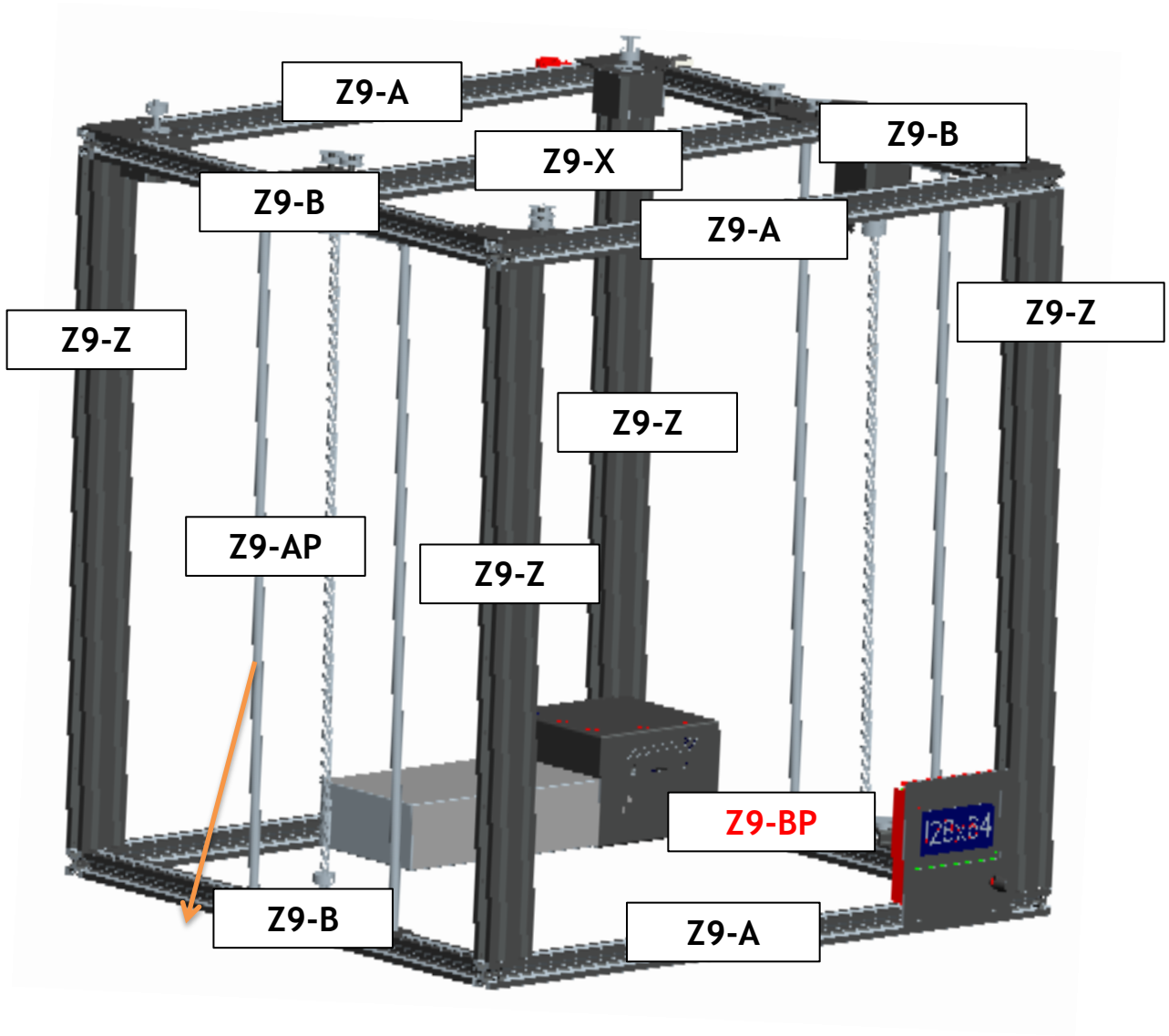
move the timing pulley to the bottom and lock the jbckscrews



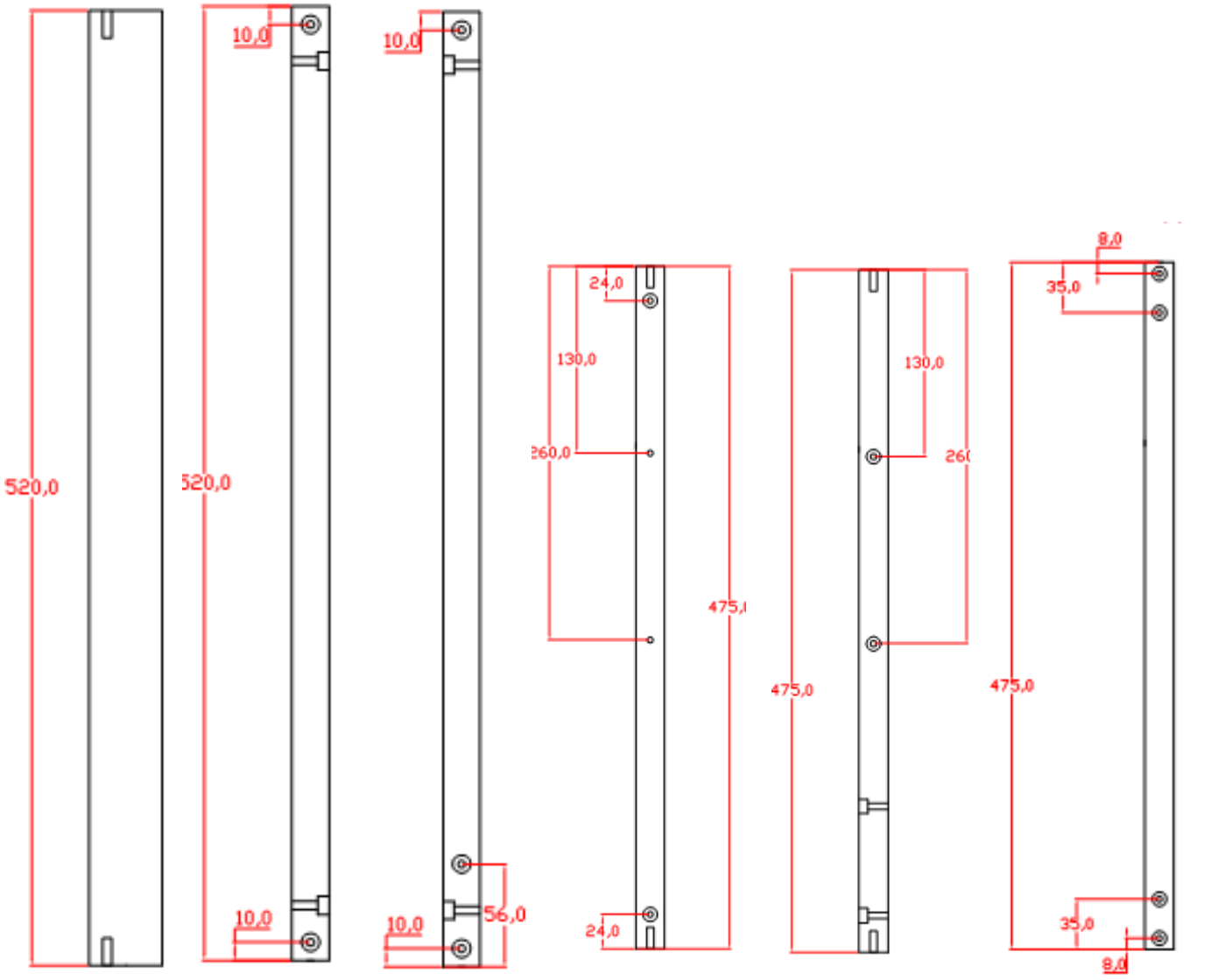
Tighten the jbckscrew to lock the lead screw

Jbckscrews*2

Aluminum profile preview

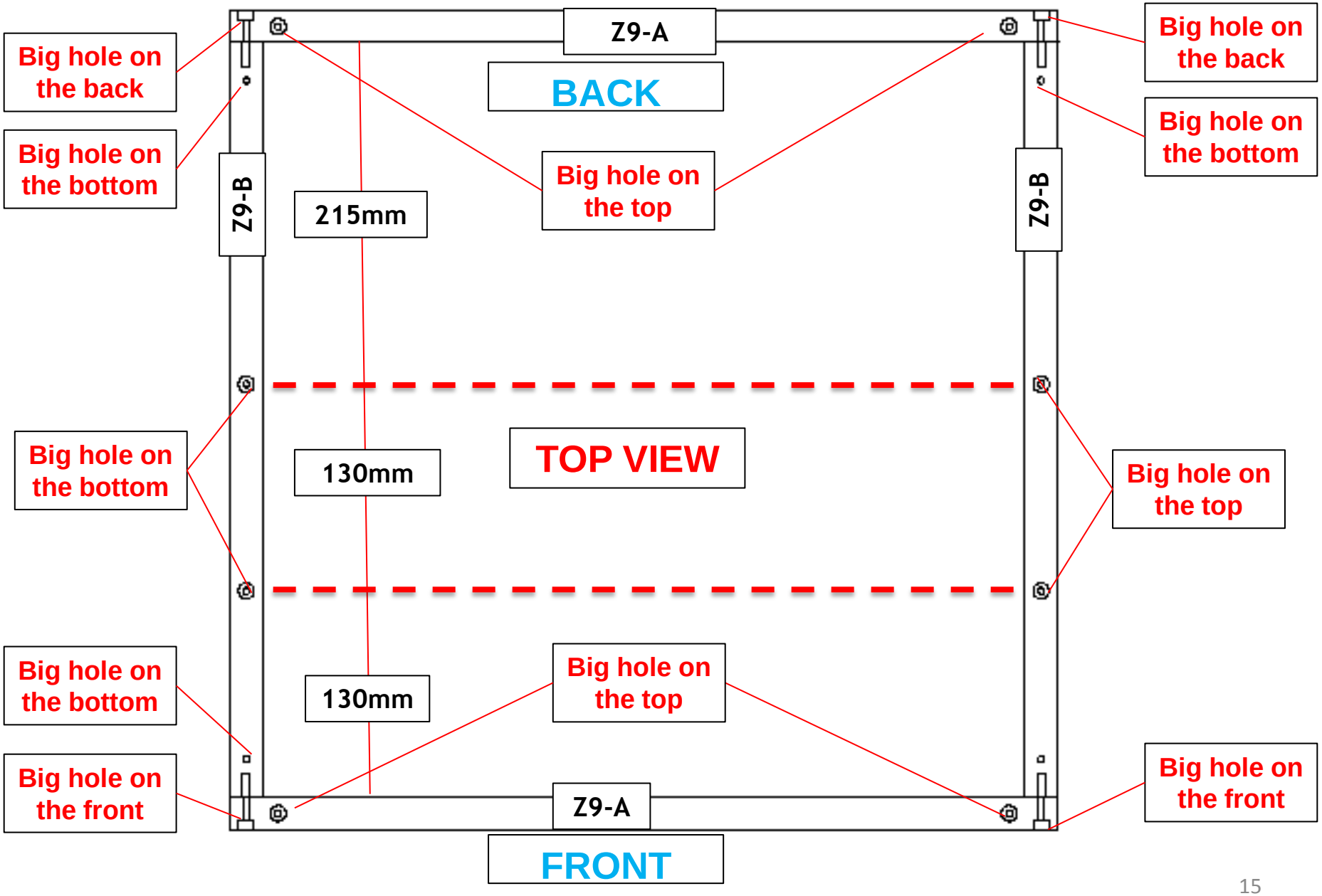


About aluminum profiles



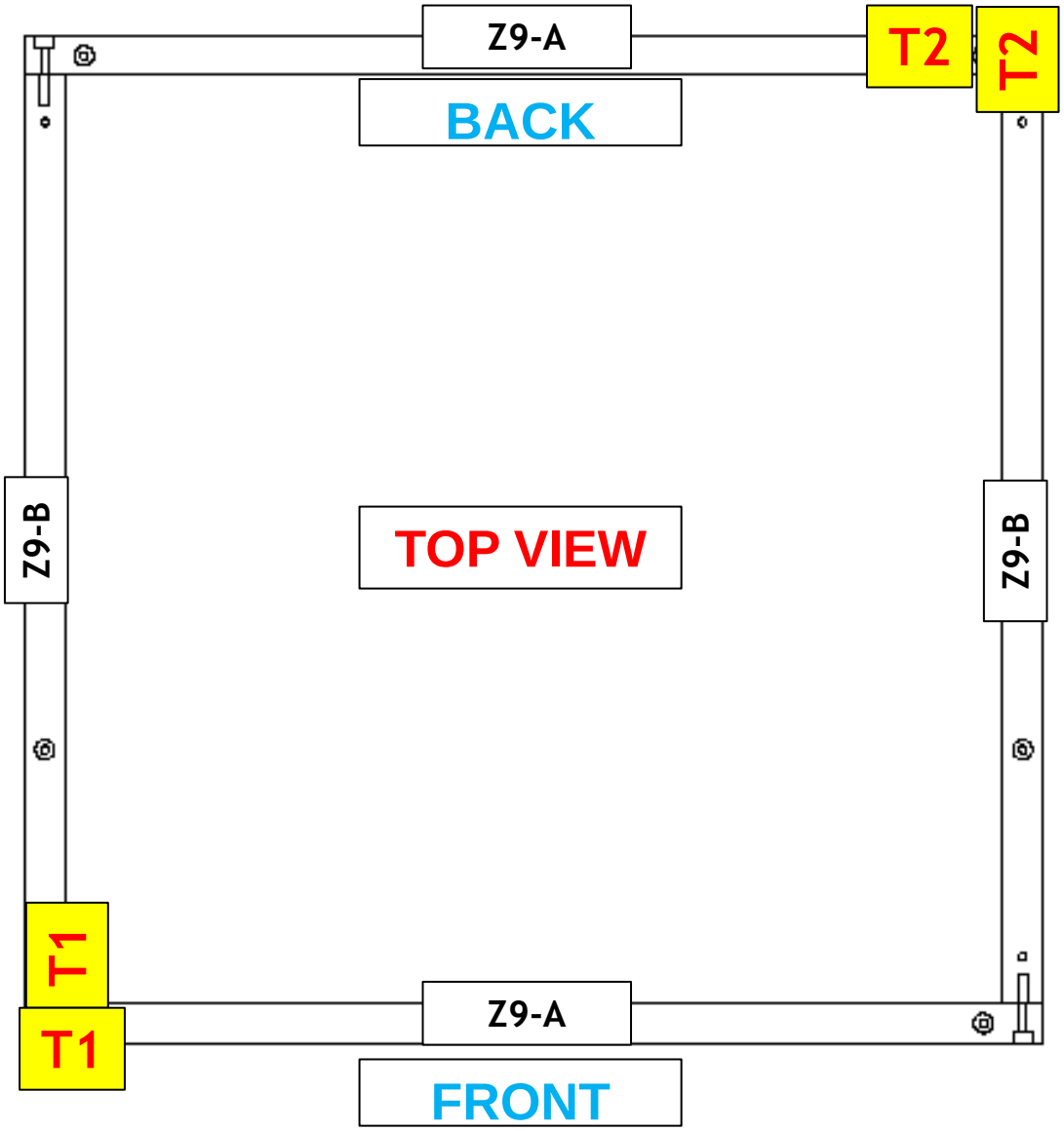
Z9-Z 4PCS	Z9-A 3PCS	Z9-AP 1PCS	Z9-B 3PCS	Z9-BP 1PCS	Z9-X 1PCS

Top aluminum profiles

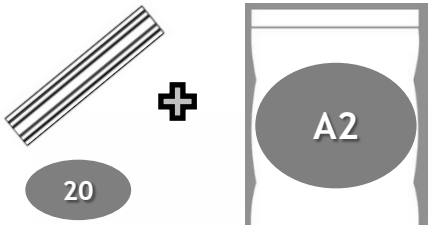


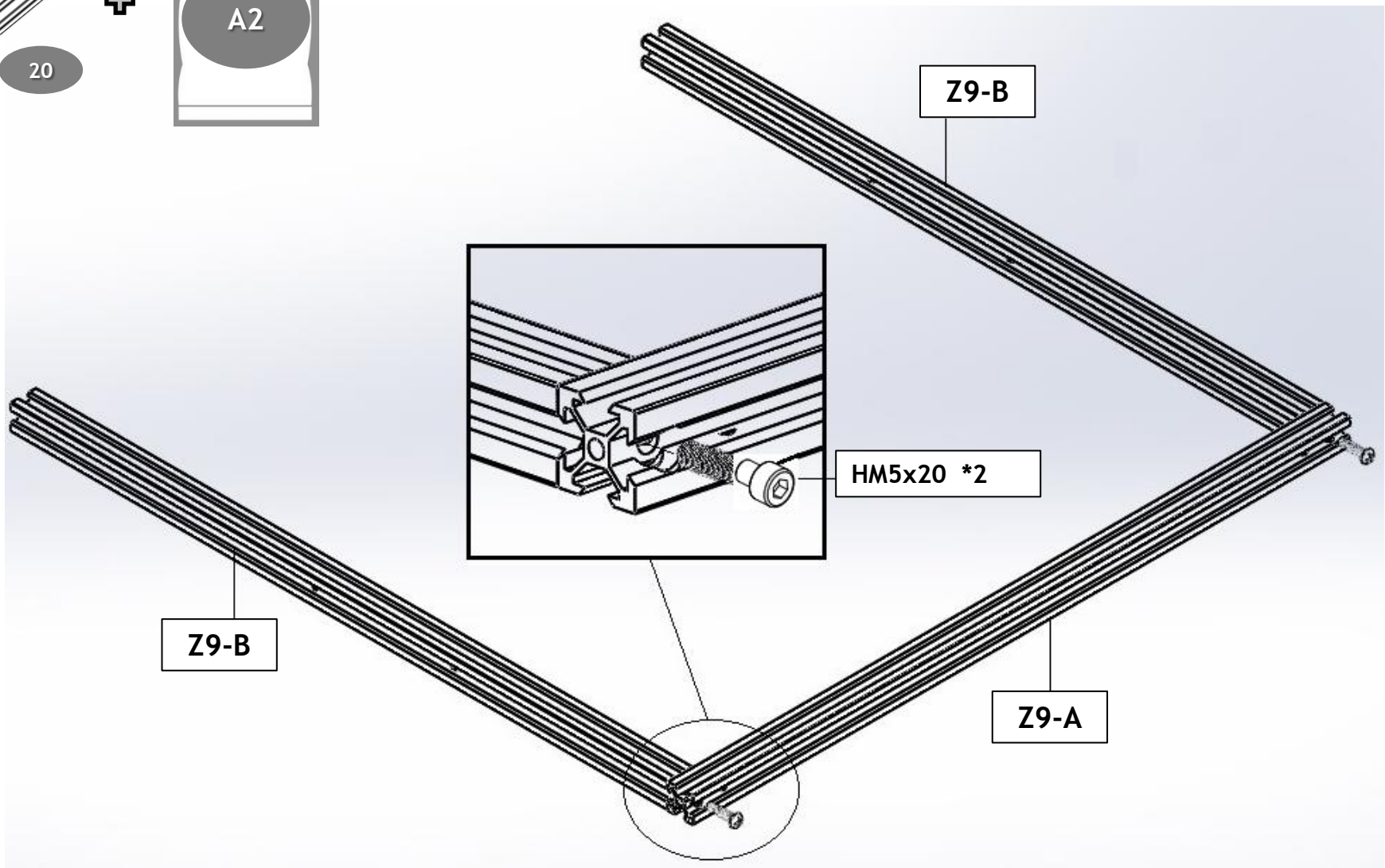
How to layout the profiles (TOP)

Find the profile with T1 and T2 stickers and place the profiles as below.



Top aluminum profiles frame assemble





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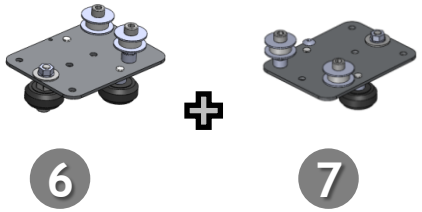
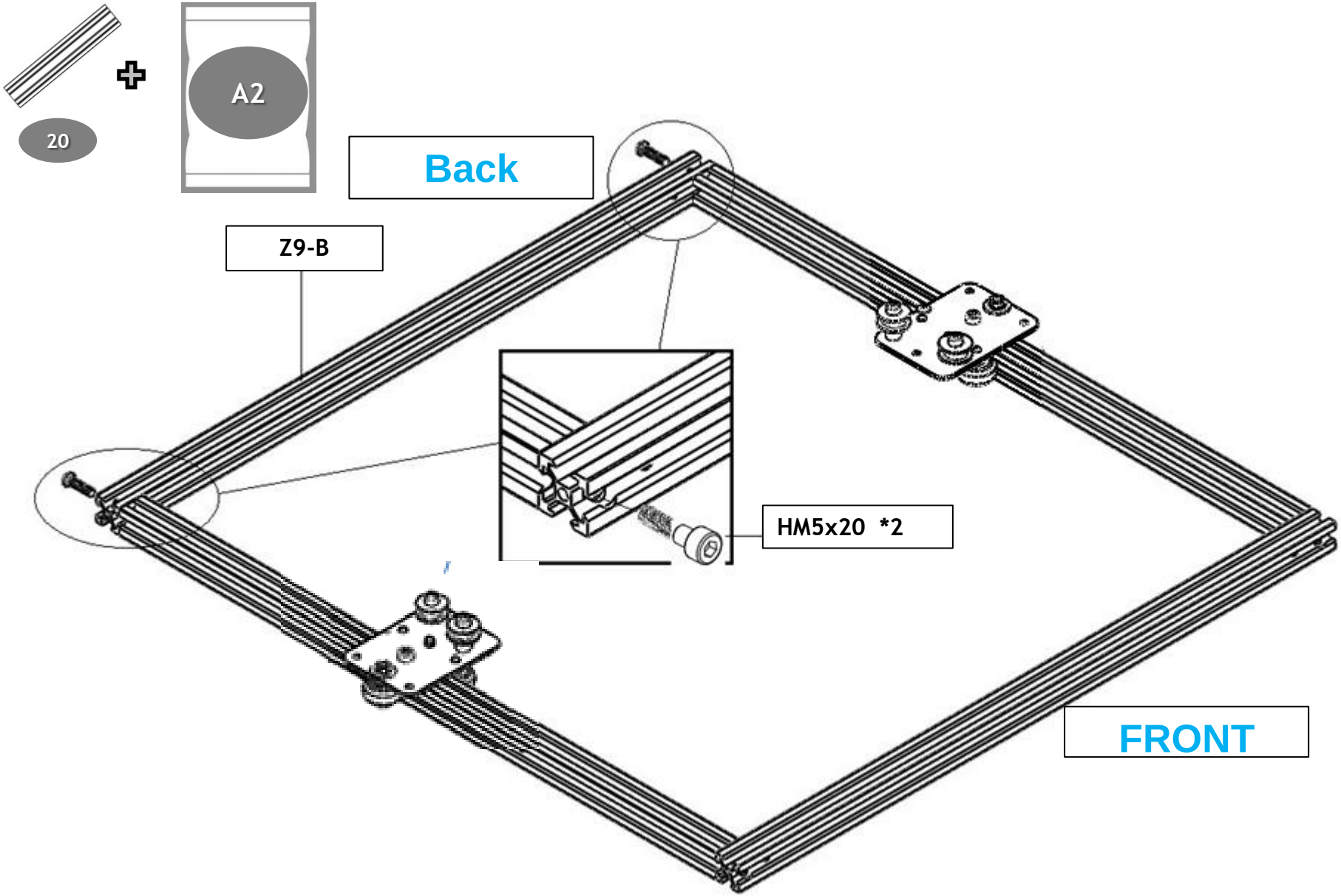
Install X Y carrier to top aluminum profile frame



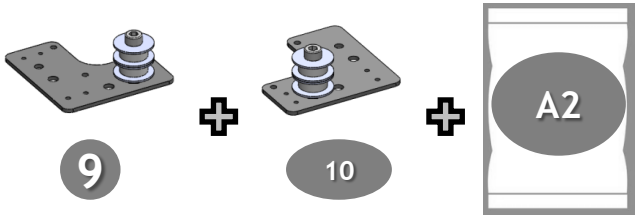
NOTE 1: Adjust the eccentric column with a wrench, let the carriers hold the rail well and move smoothly.
NOTE 2: The carriers shell maybe a little different with the picture.

Zonestar

Assemble top aluminum profiles frame



Install X Y bearing bracket



Y Carrier - right

Y bearing bracket

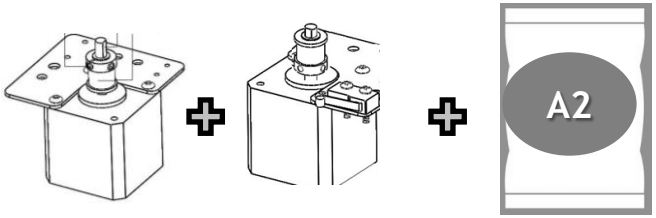
Y Carrier - left

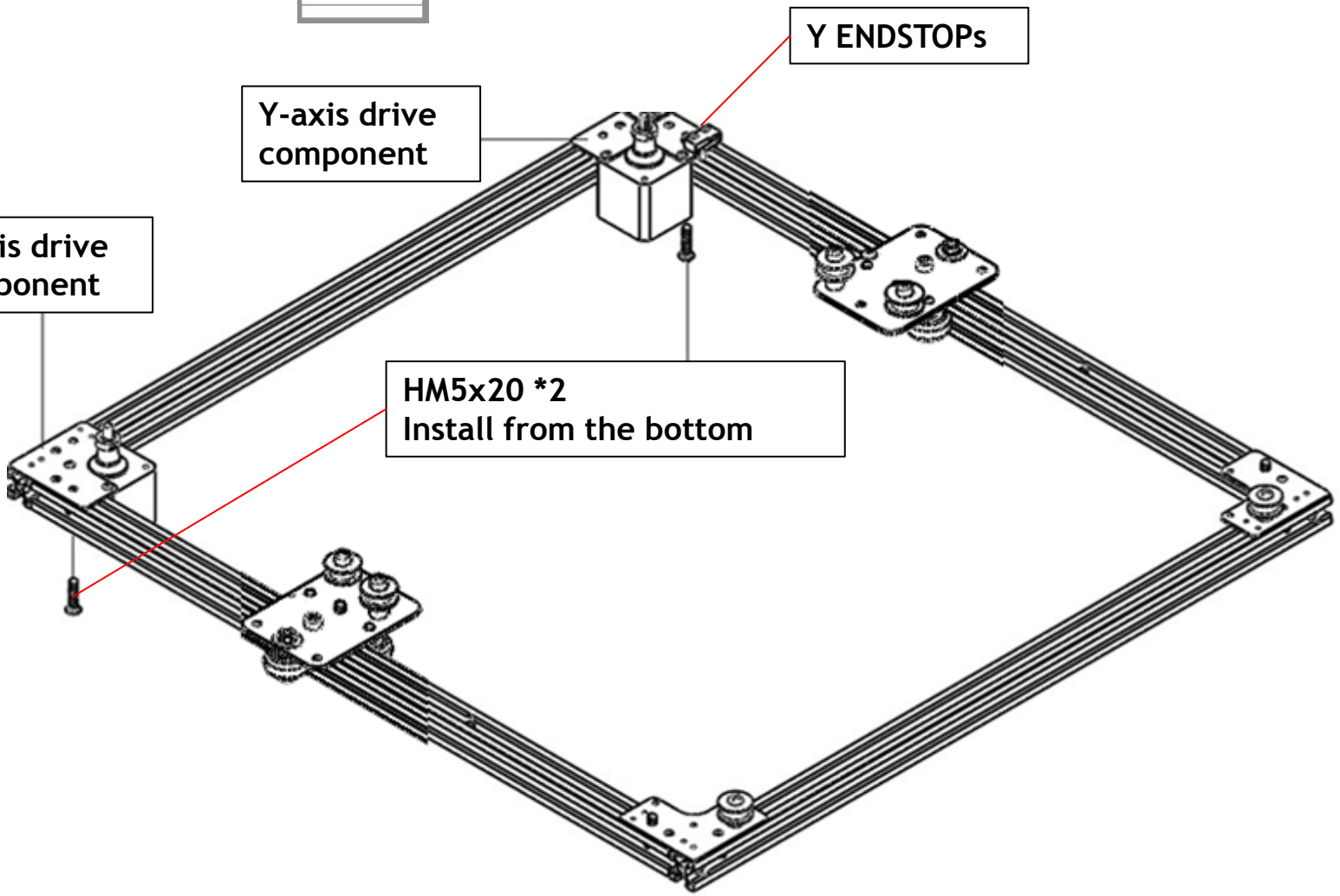
X bearing bracket

HM5x20 *2
Install from the bottom

Zonestar

Install X and Y drive components





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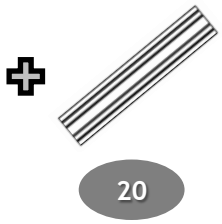
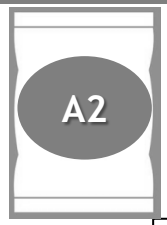
Assemble X-axis mechanism





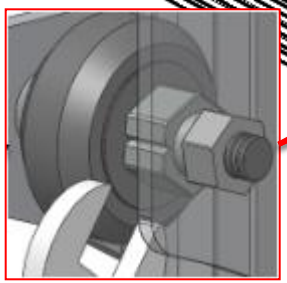
Bottom view

HM5x20

Insert the hotend first

PN: Z9-X

HM5x20

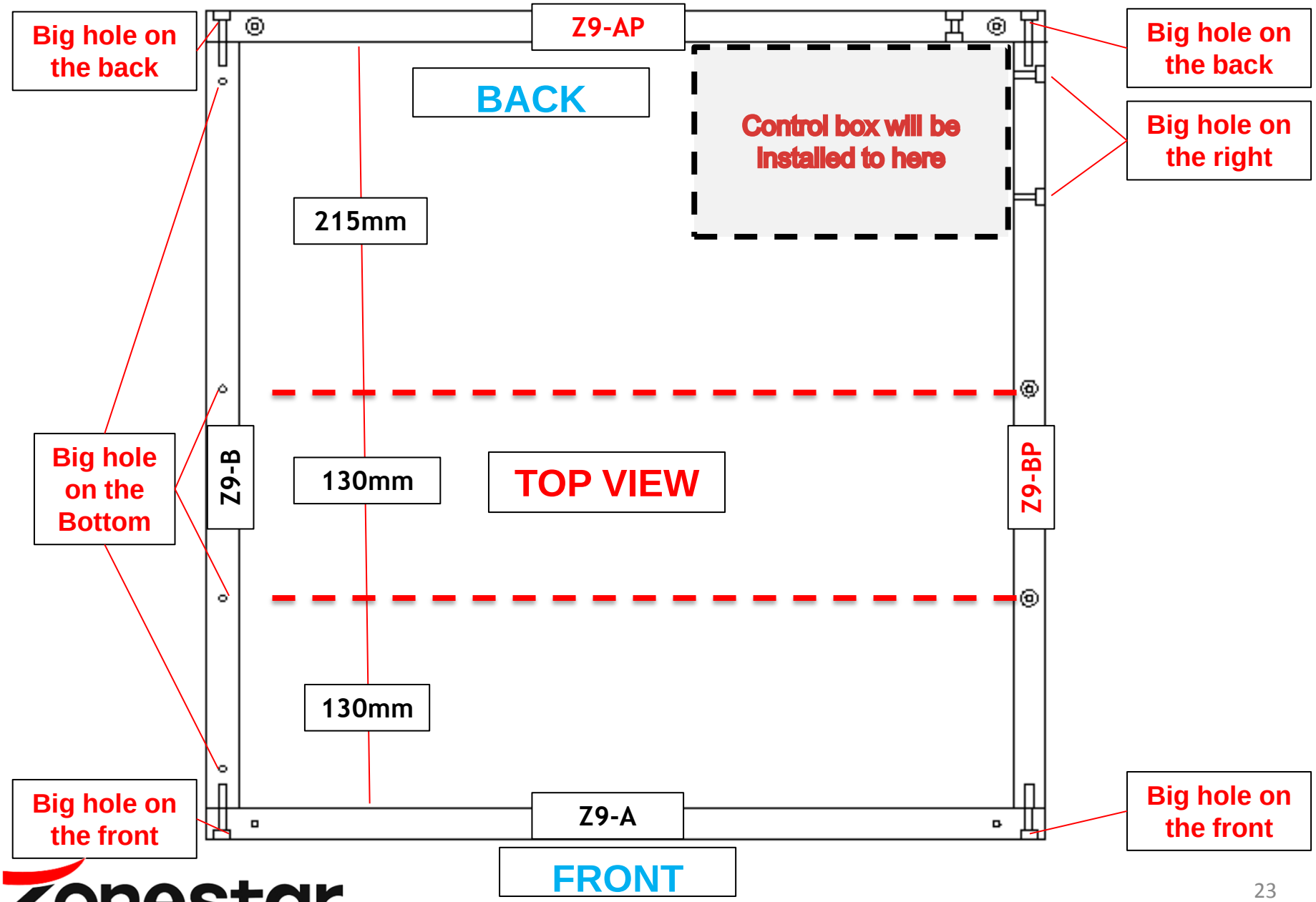


NOTE 1: Adjust the eccentric column with a wrench, let the printhead hold the rail well and move smoothly.

NOTE 2: The printhead bracket shell maybe a little different with the picture.

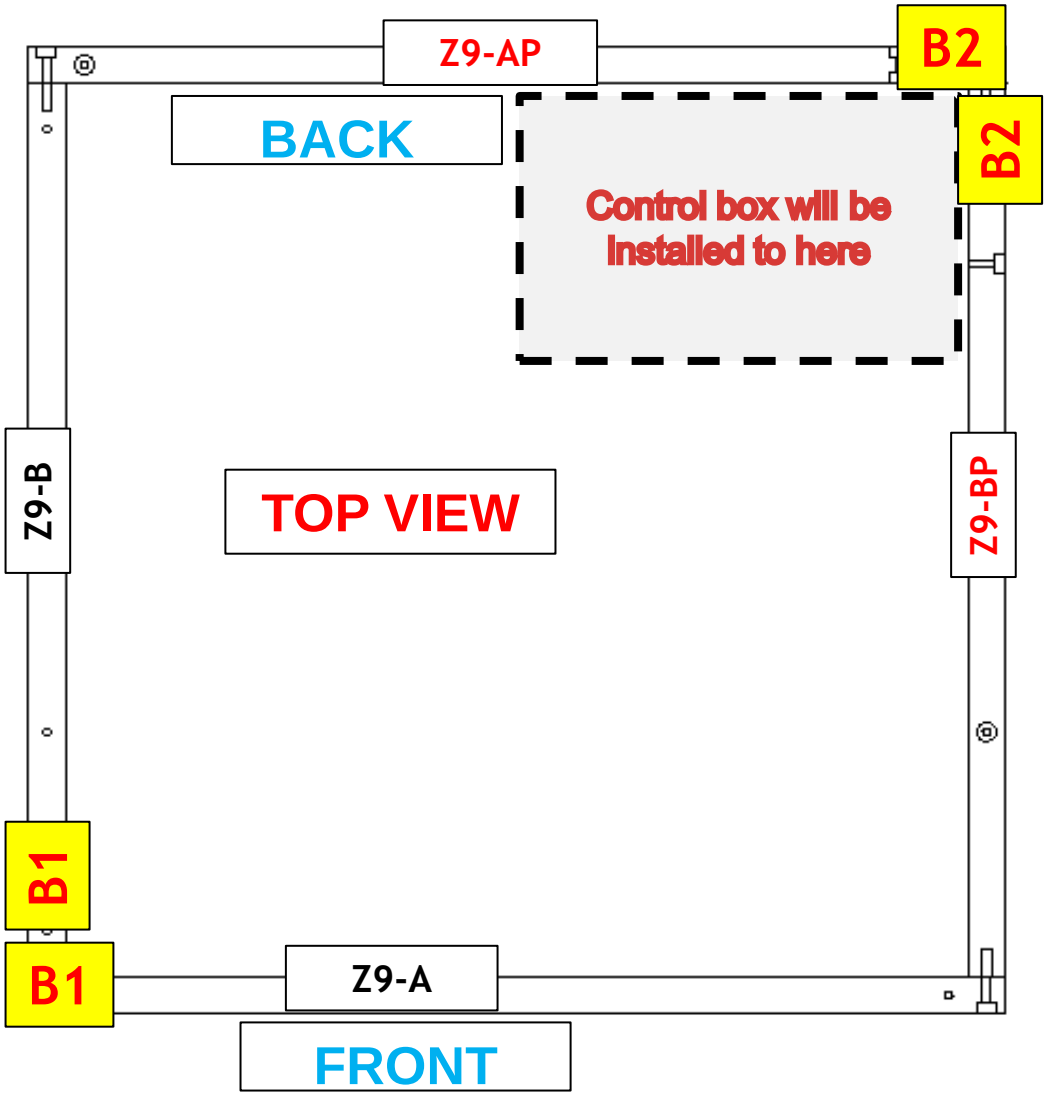
Zonestar

Bottom aluminum profiles

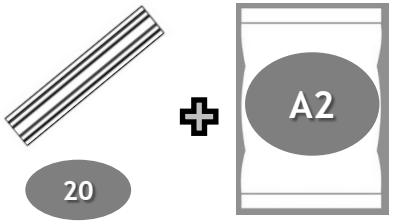


How to layout the profiles (BOTTOM)

Find the profile with B1 and B2 stickers and place the profiles as below.



Bottom aluminum profiles frame assemble



Z9-AP

Z9-BP

Back

HM5x20 *4

Front

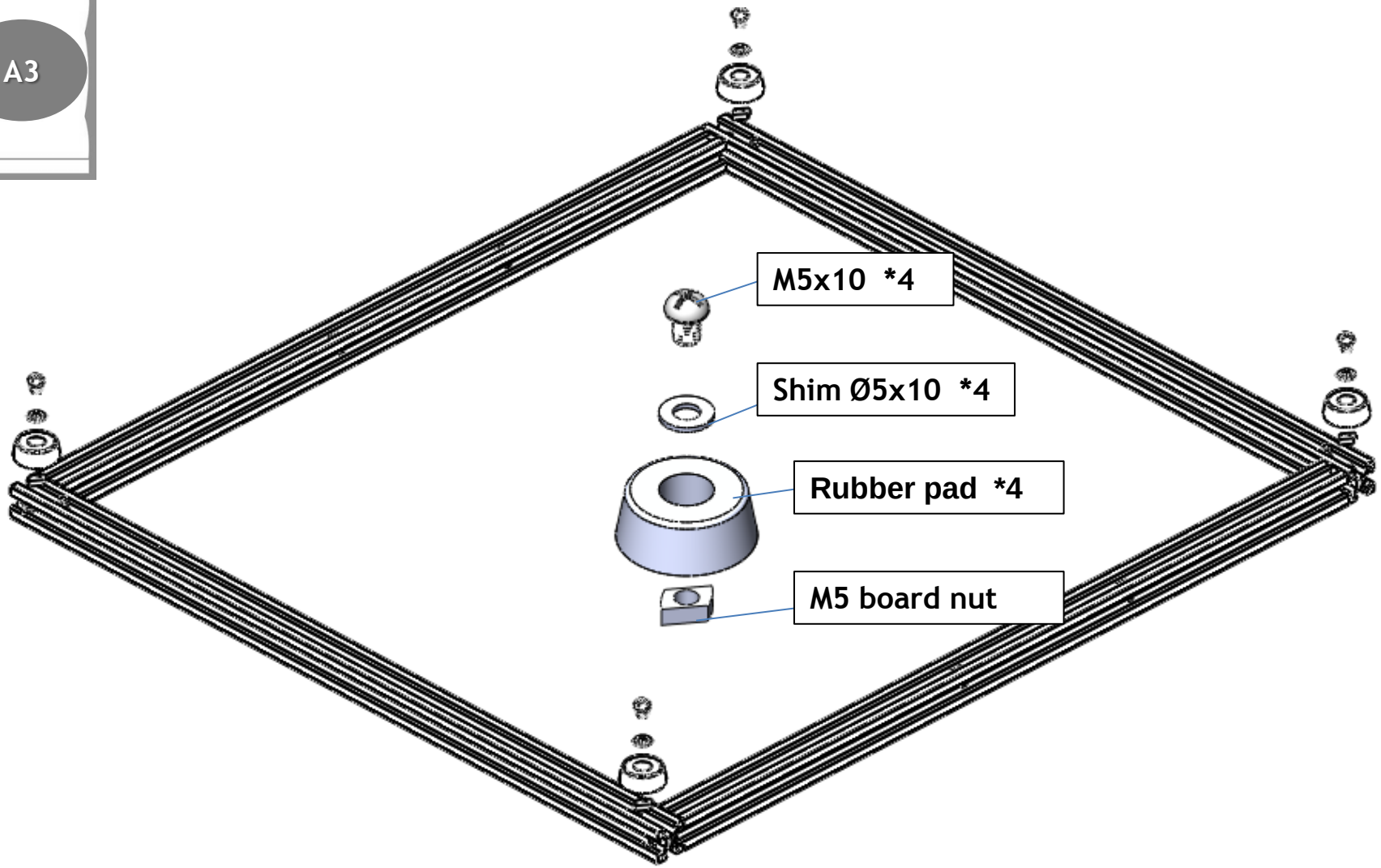
Z9-B

Z9-A

Zonestar

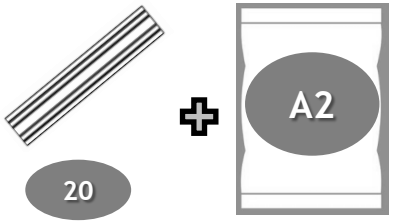
Install Rubber pads

A3



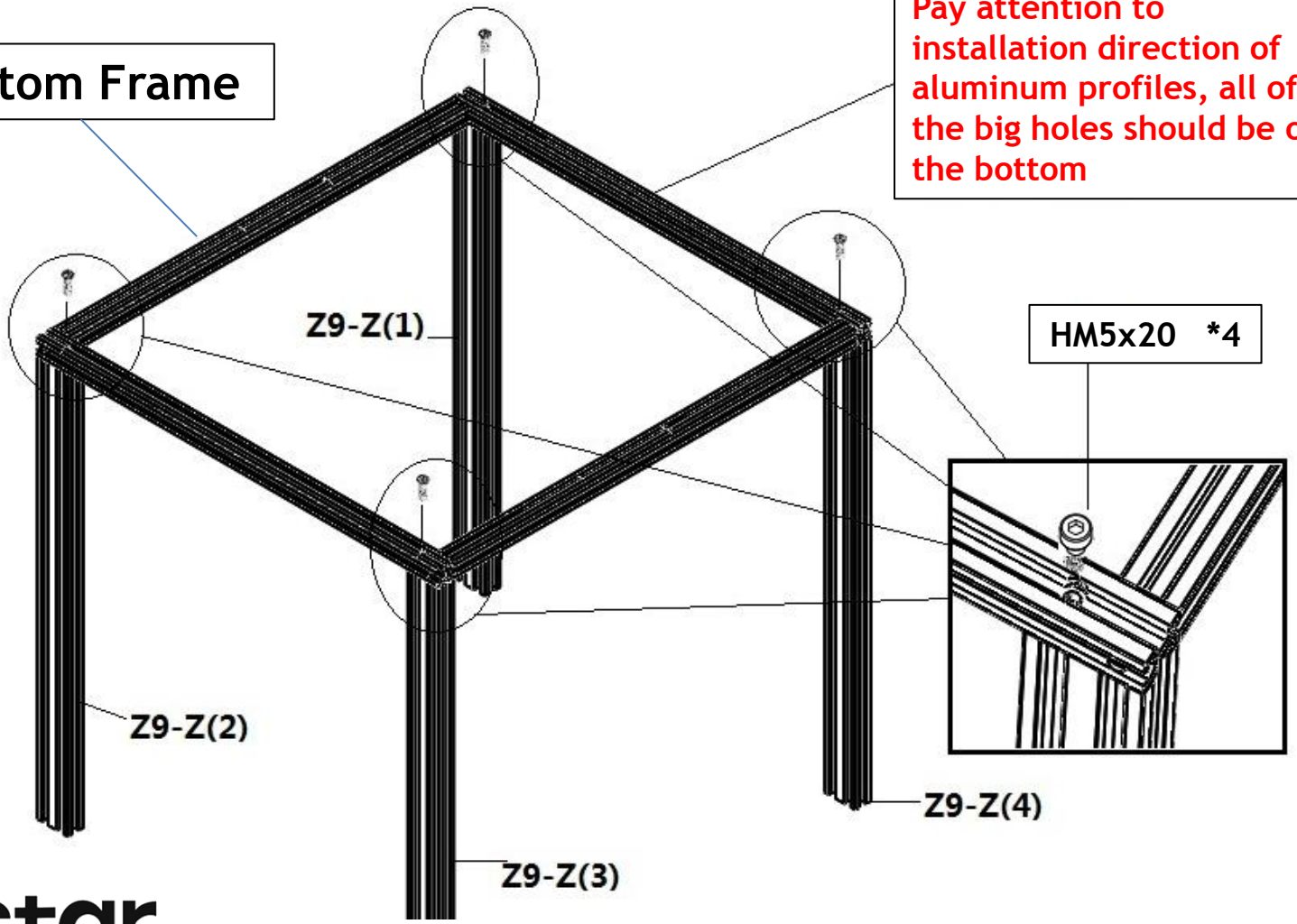
Zonestar

Assemble the side aluminum profiles frame



Bottom Frame

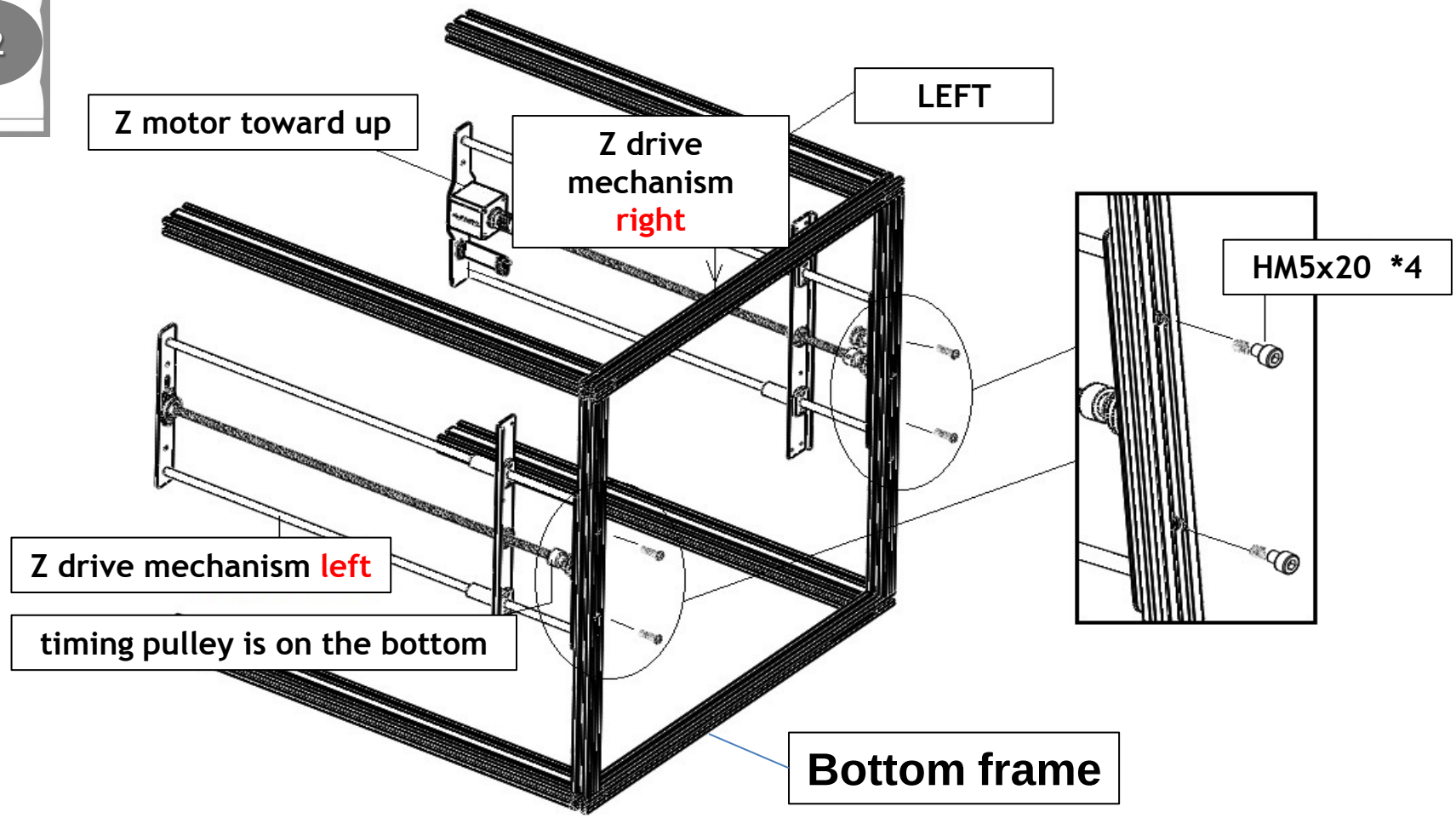
Pay attention to installation direction of aluminum profiles, all of the big holes should be on the bottom



Zonestar

Install Z drive mechanism to the frame

A2

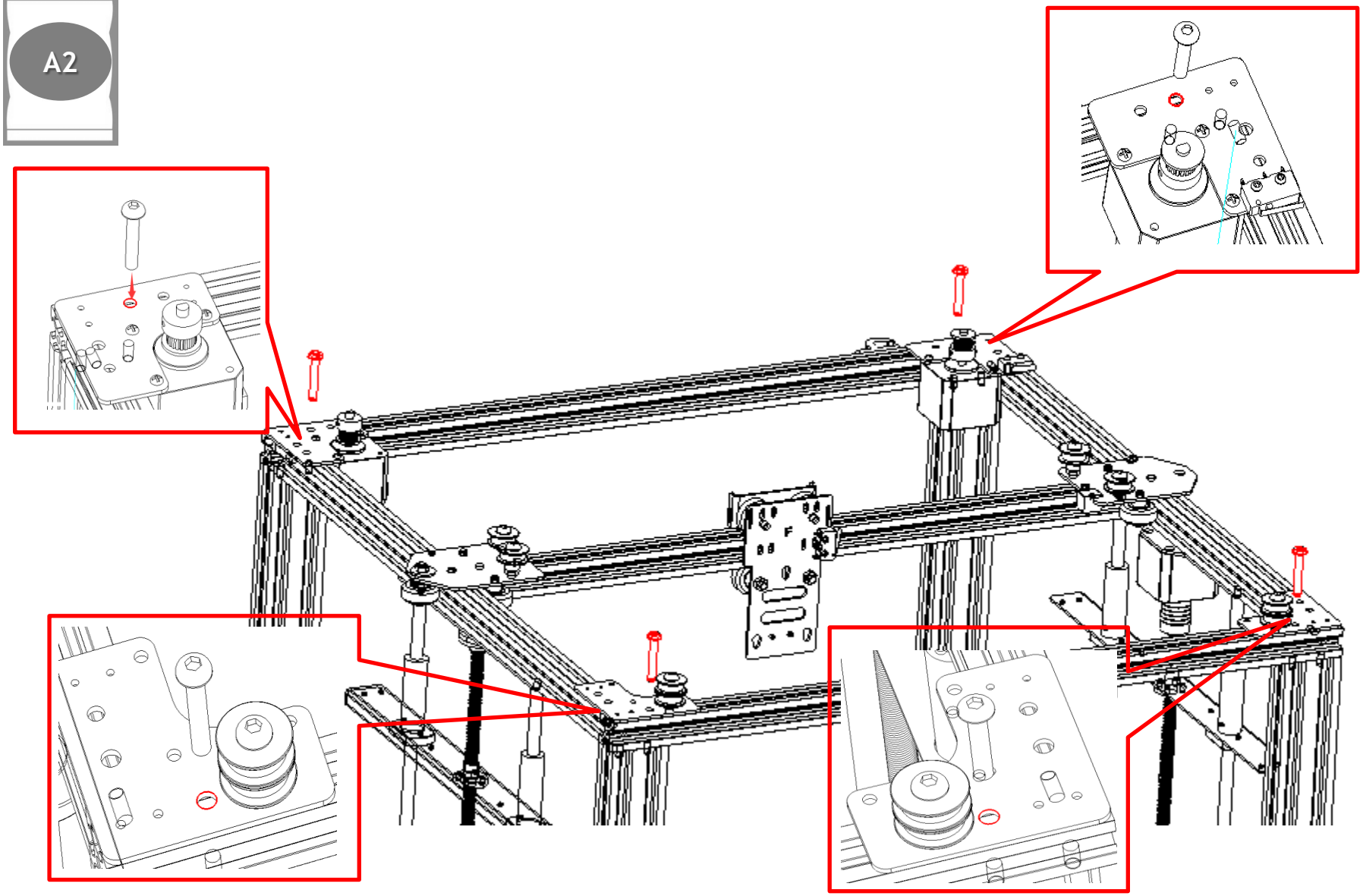


NOTE: There is a closed timing belts between the left and right drive components, which are omitted in this picture for easy viewing.

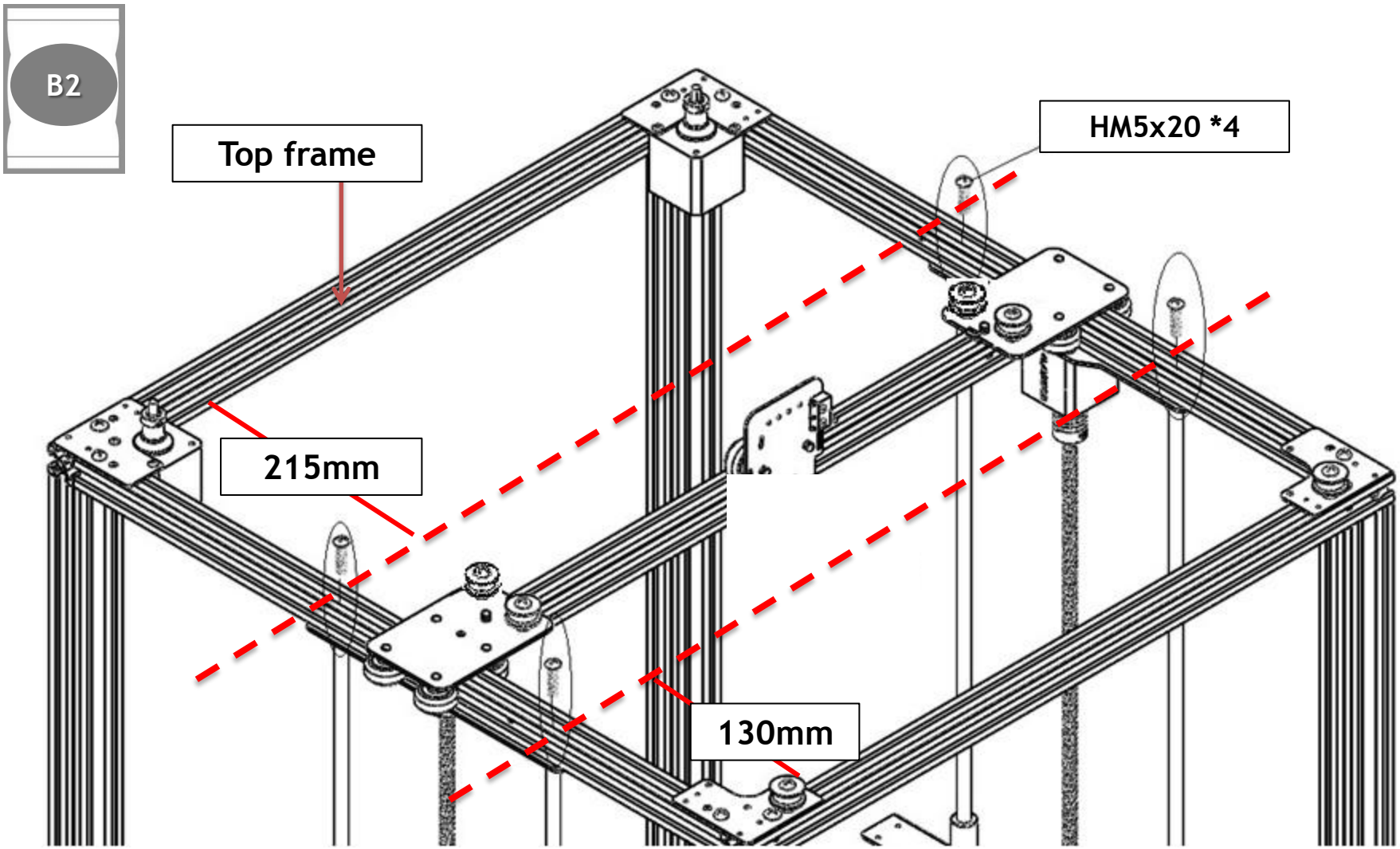
Zonestar

Install the top frame to Z-axis profiles - Step 1

A2



Install the top frame to Z-axis profiles - Step 2



About Corexy system

1. The Z9 XY drive system uses the ***Corexy*** structure. If you want to know more about the ***Corexy***, please refer to the following links:
https://reprap.org/wiki/CoreXY
https://www.corexy.com/theory.html

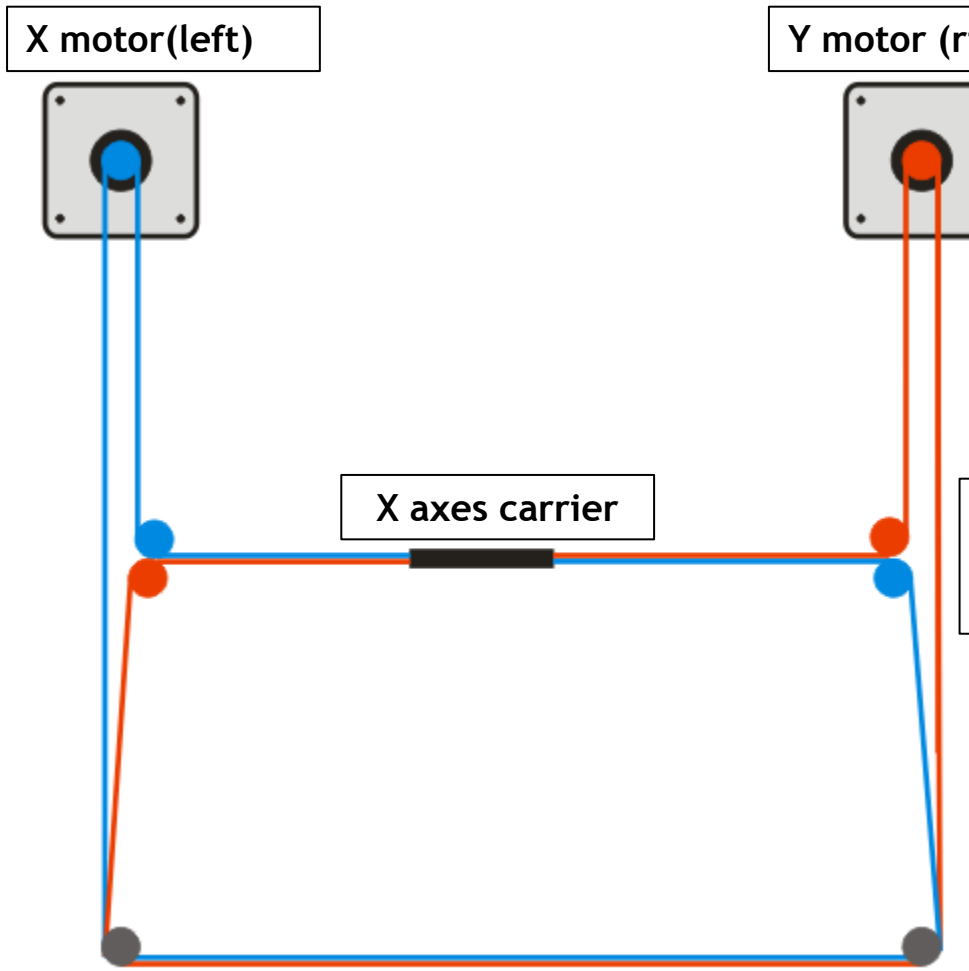
2. As a ***Corexy*** drive system, the X motor and Y motor must work at the same time when the print head move in X or(and) Y axis. For Z9, the correspondence between the moving direction of the print head and the motor rotation is as follows:

X motor	Y motor	Movement	X motor	Y motor	Movement
+	+	Go HOME in **X axis**	-	+	Go HOME in **Y axis**
-	-	Go Far in **X axis**	+	-	Go Far in **Y axis**

+ : Clockwise rotation **-:** Anticlockwise rotation

NOTE 1: It is worth mentioning that the origin of Z9 is located at the right-back corner of the machine, it is a little different with the most of printer, but this has no effect on printing.
NOTE2: If the wiring of the X and Y motors is exchanged, or one of the X and Y motors does not work properly, the print head will not operate in the normal direction.

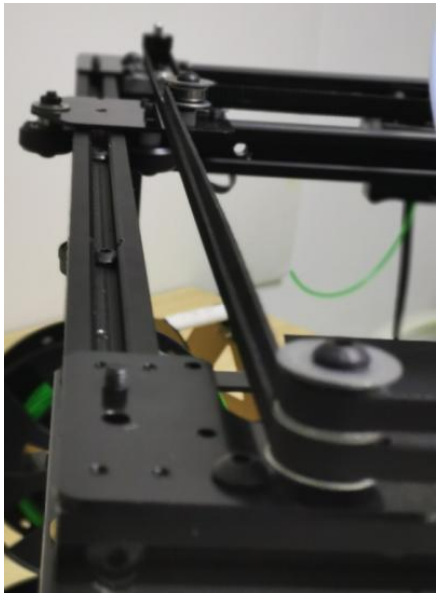
About the belts for X & Y

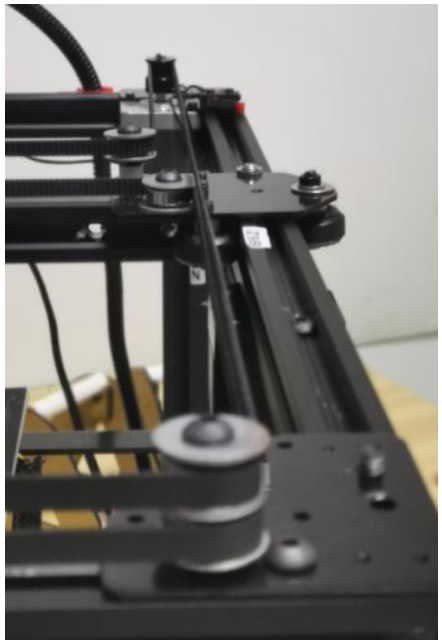


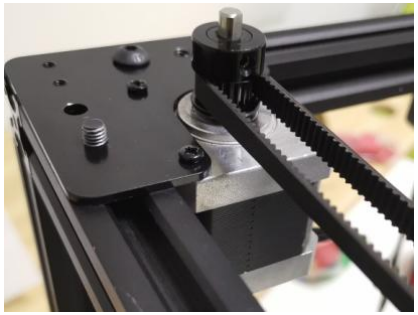
X motor belt (Blue) is on the bottom layer.

Y motor belt (Red) is on the top layer.

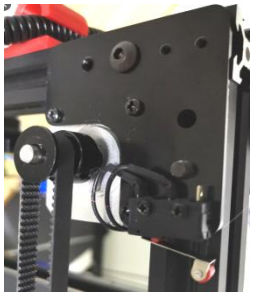
Install belts for X & Y





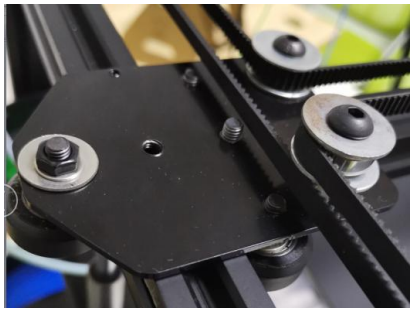


Left (X) motor

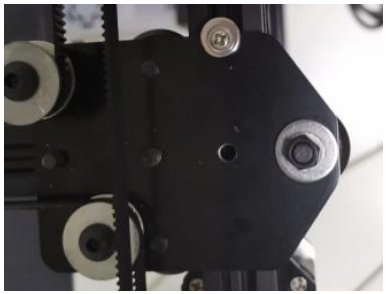


Right (Y) Motor

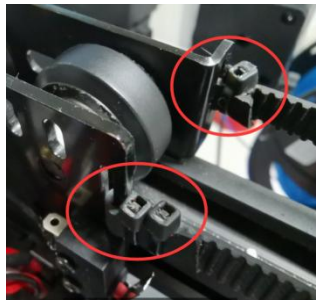
Lock the belt



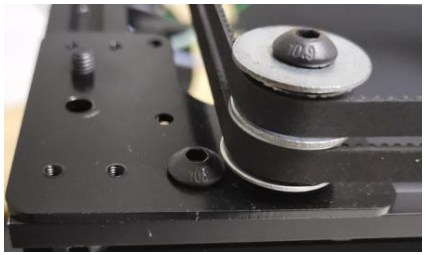
Left Carrier



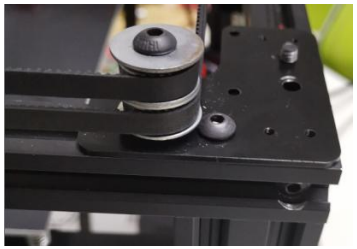
Right Carrier



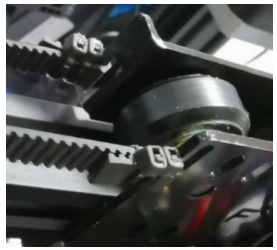
Hotend (Right)



Left idler

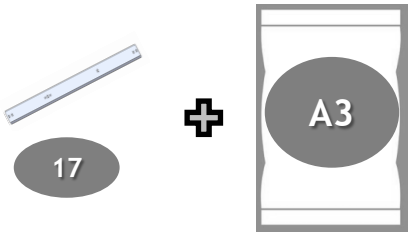


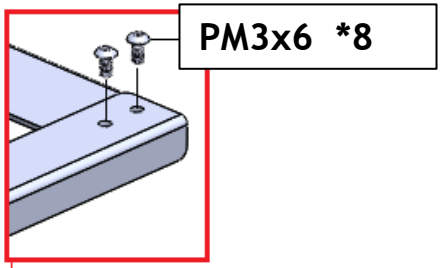
Right idler



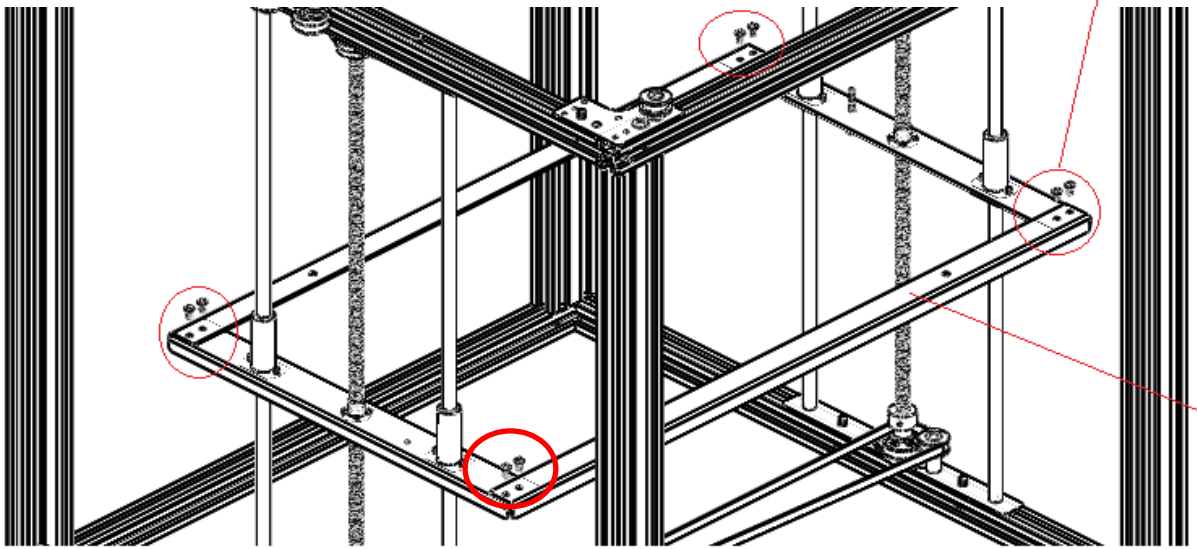
Hotend (Left)

Assemble hot bed Bracket



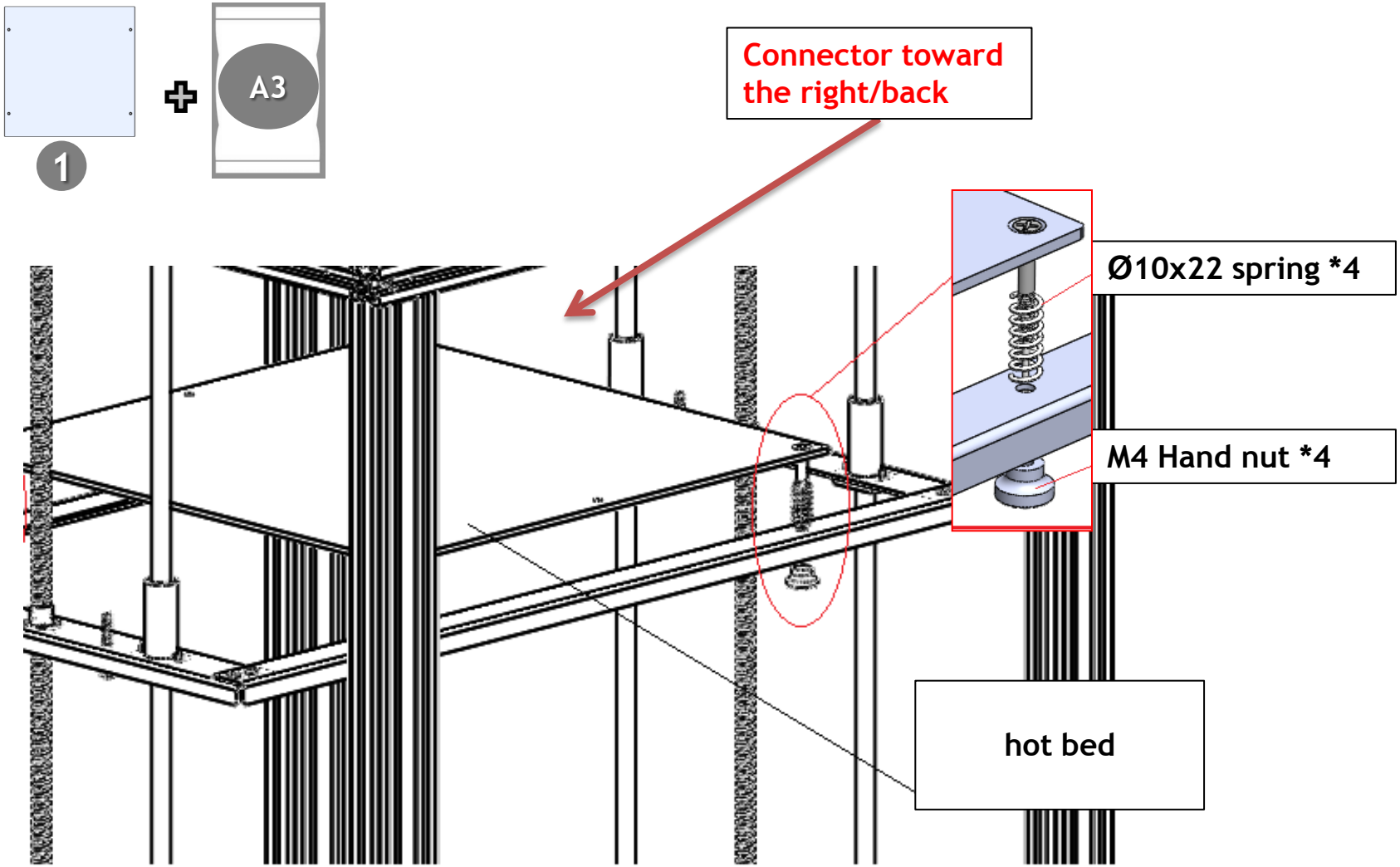


PM3x6 *8



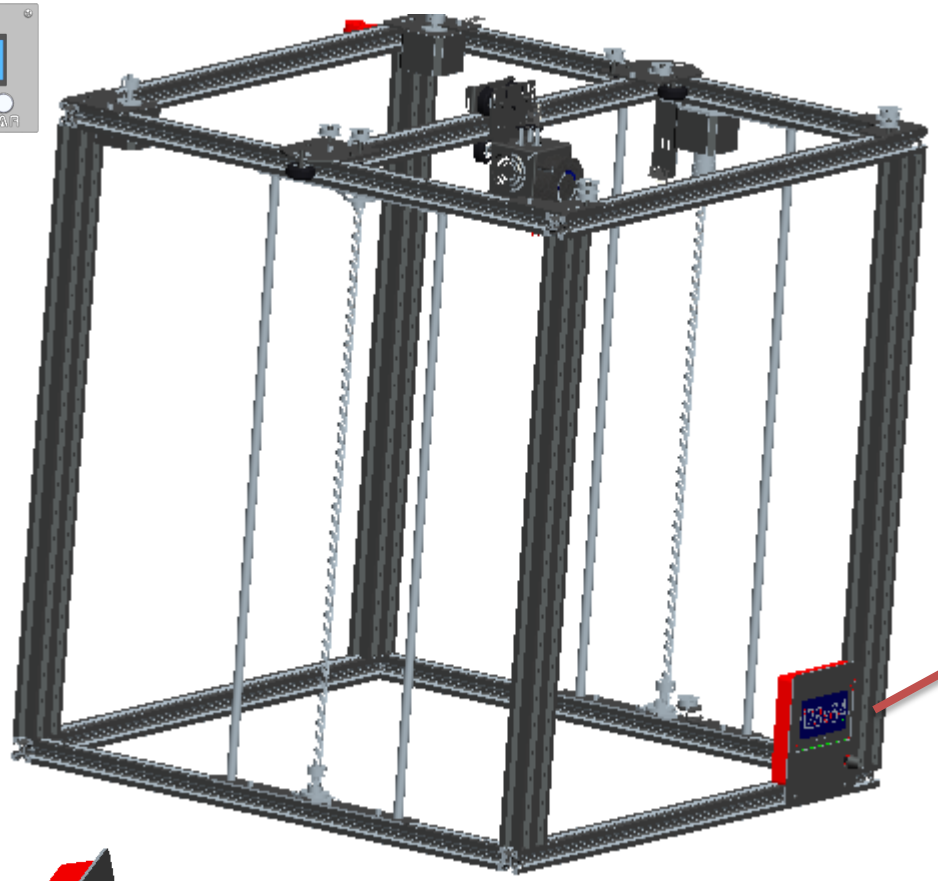
Hotbed bracket *2
PN: Z9-2

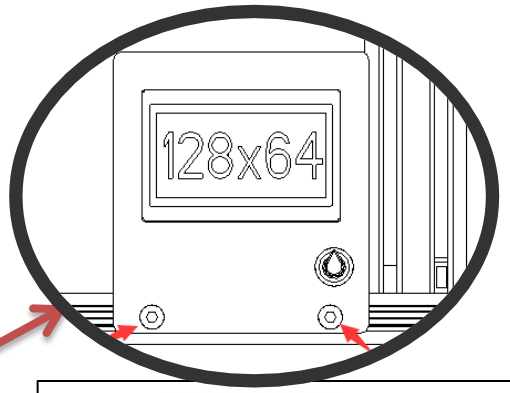
Install hot bed



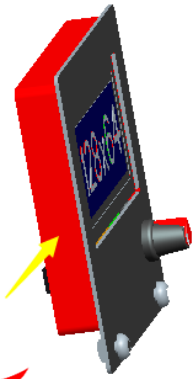
Install LCD screen

3





Tighten the screw to fix the LCD screen on the frame (right-bottom corner of the front)



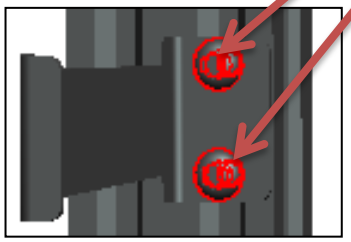
NOTE: If you want to add a cover for LCD screen, please find the "lcd12864_case.gcode" in SD card and print one, than install it to the back of the LCD screen.

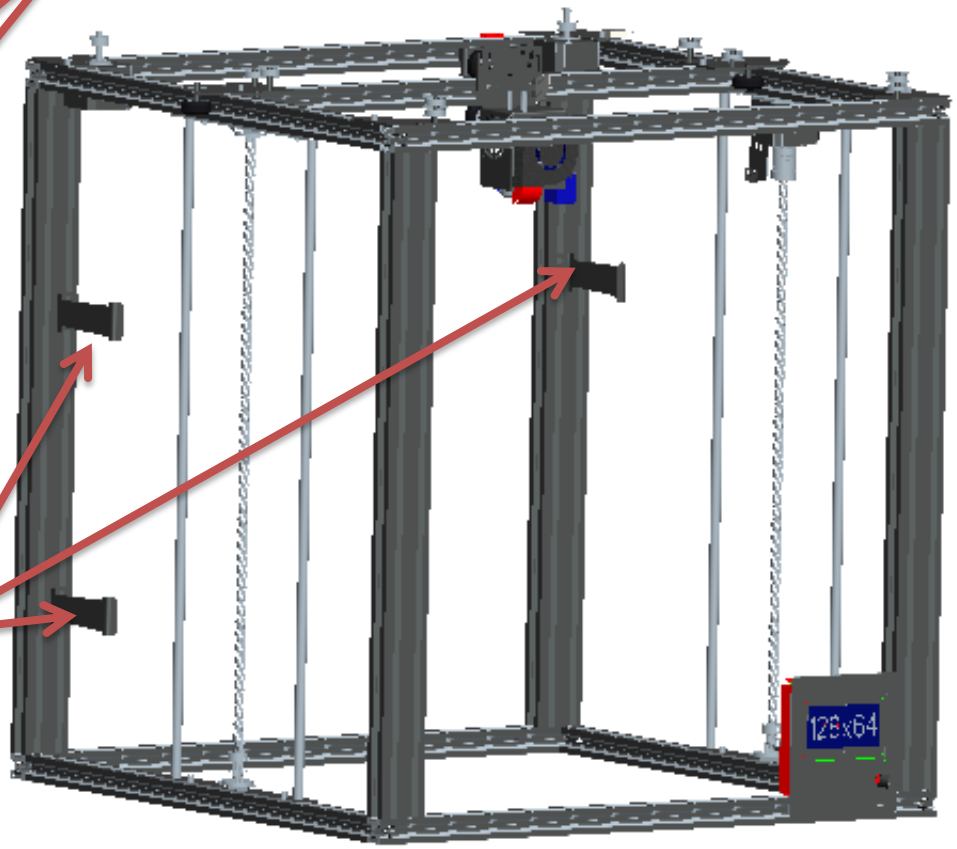
Zonestar

Install filament roll bracket

A3

Lock these two srews install the bracket to be back Z axis profiles



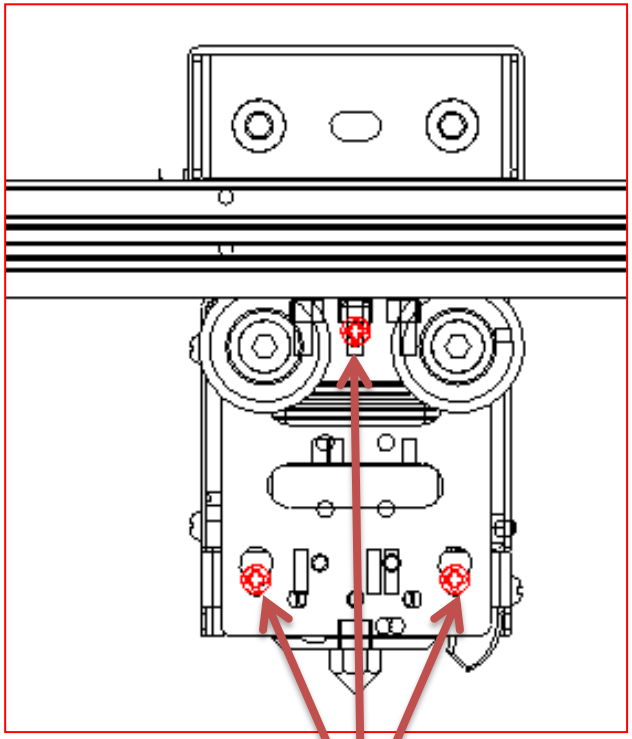


Filament roll bracket

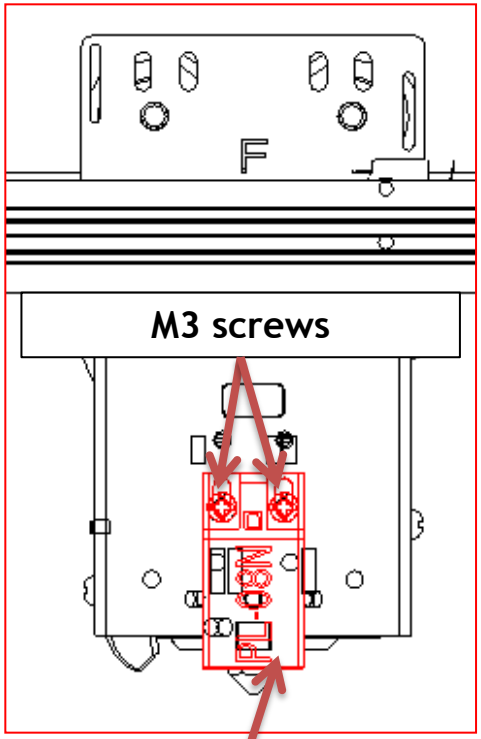
NOTE: Install 4 sets for Z9M4.

Zonestar

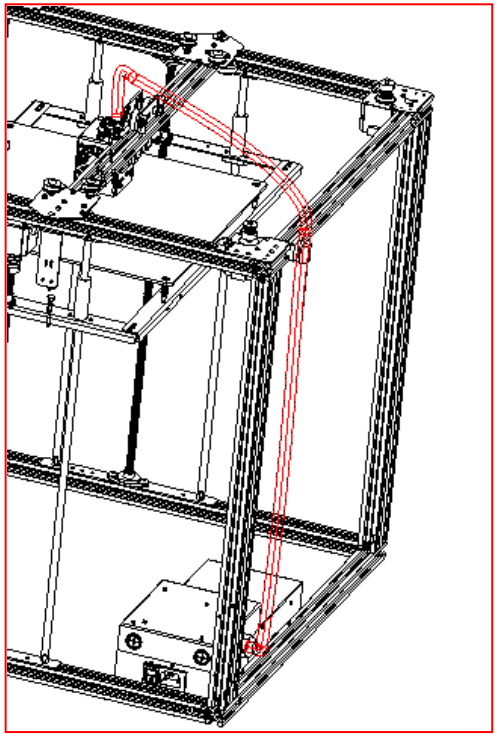
Install HOTEND



Lock these screws



Install the proximity sensor to the fornt of print head



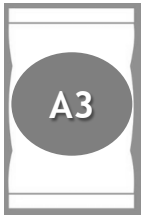
Layout the wire of print head

1. Put the X ENDSTOP wire into the bellows of the print head.
2. Tie the bellows and the proximity sensor cable by cable tie

Install extrusion feeder and PTFE tube

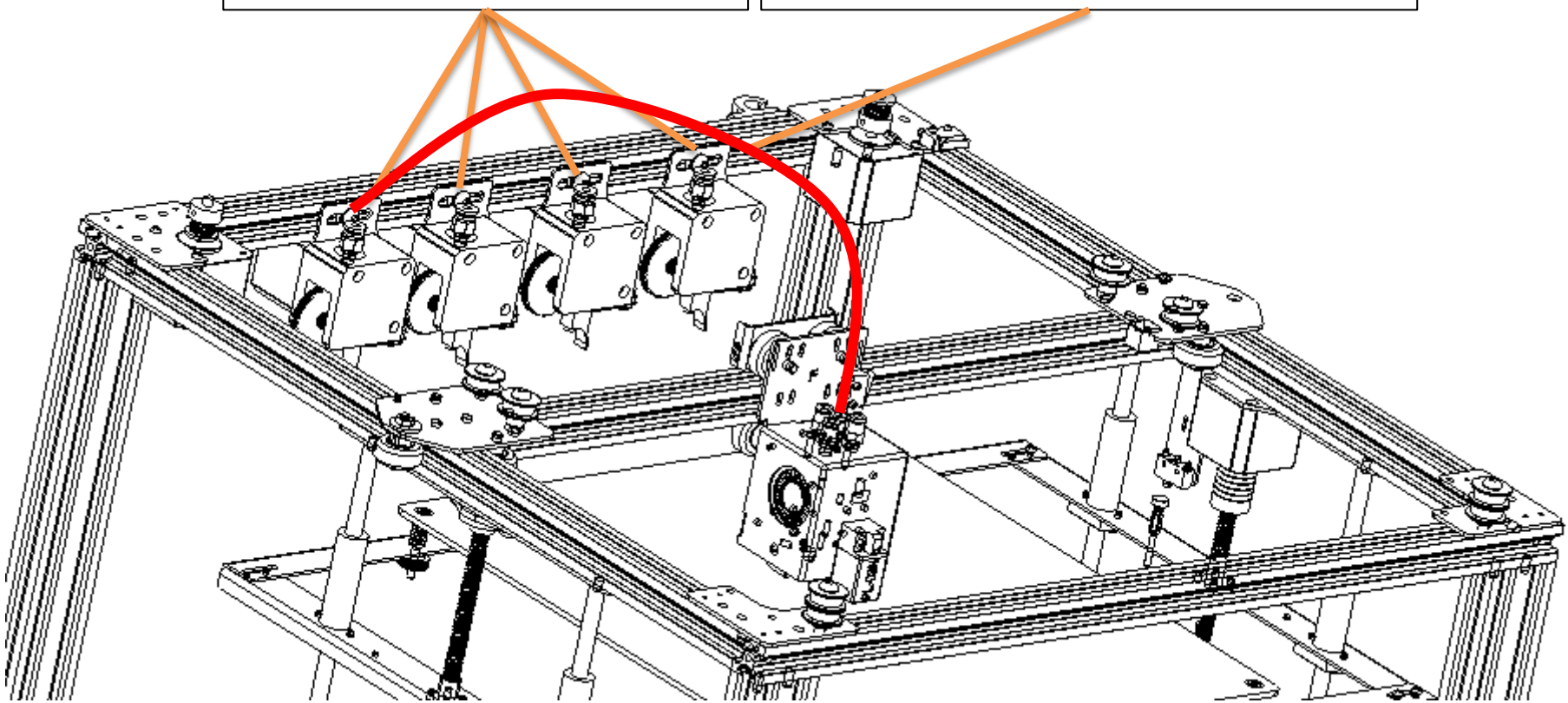
4

+



Step 1. Lock the screw to install the extrusion feeder on the frame.

Step 2. Insert the PTFE tube (Filament guide)

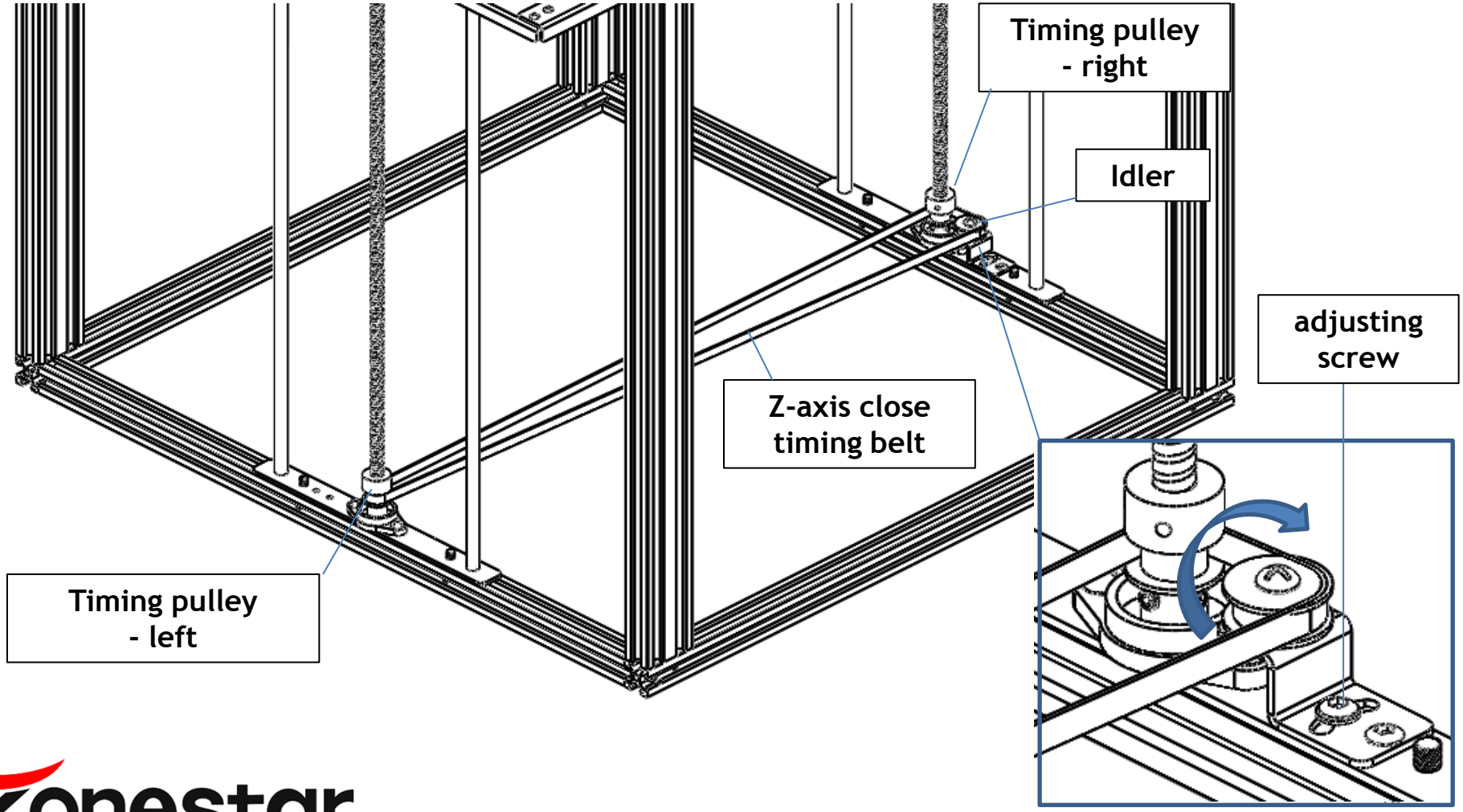


NOTE: 3 channels has been closed when the printer left factory, we suggest you to connect one PTFE tube to print one color first, after you have some experenice, you can open all of these channels.

Zonestar

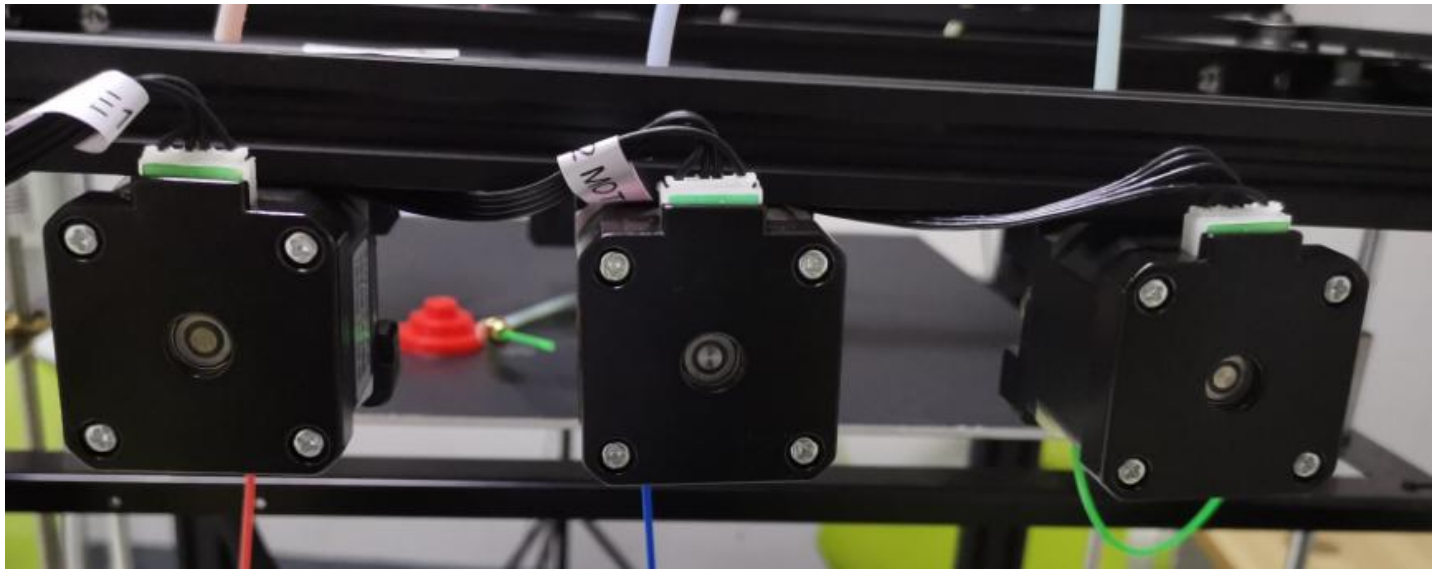
Auto the Z-axis synchronous drive system

For large-size 3D printers, since the printing platform is heavy, if the left and right sides are separated, there will be a problem of height inconsistency.
Z9 solves this problem by using synchronization belt to force synchronization of the left and right Z axes. After the installation is complete, the Z-axis timing belt should be tightened by rotating the idler.



Zonestar

Photo of extrusion feeder and Z belt idler



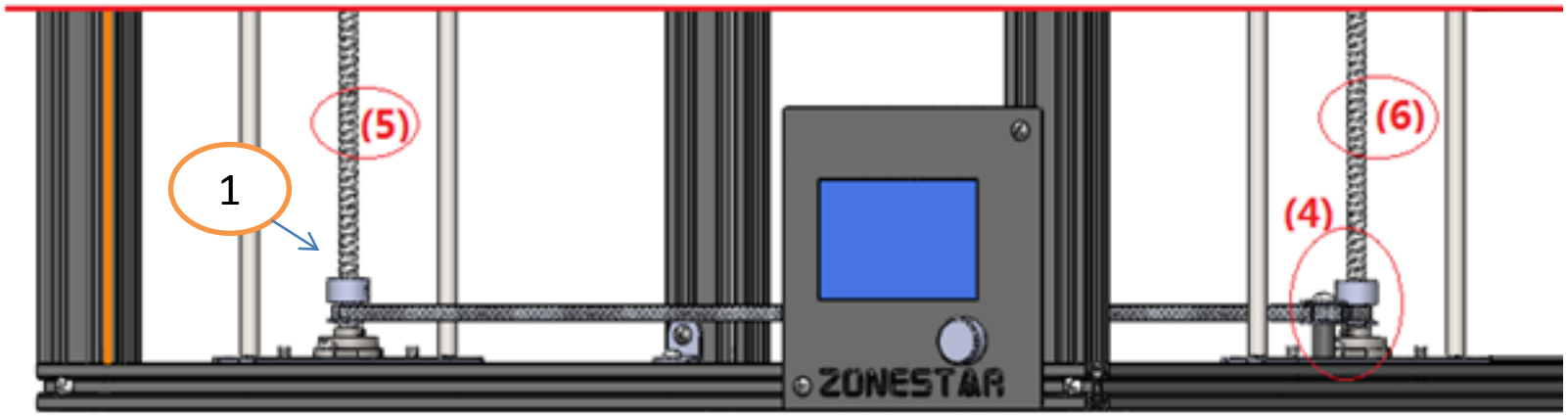
Z belt idler

Zonestar

Level the Z aixs - step 1

Step 1: adjust the Z axis left and right slider components to the same height, steps as following:

1. loosen the set screws of the Z-axis timing pulley(fig 1).
2. Manully Rotate the lead screws (fig 5 and 6) to move down the hotbed to the bottom, until both of the right and left copper nut touched the timing pulleys.
3. Tighten the set screws lock the timing pulleys to the lead screw again.



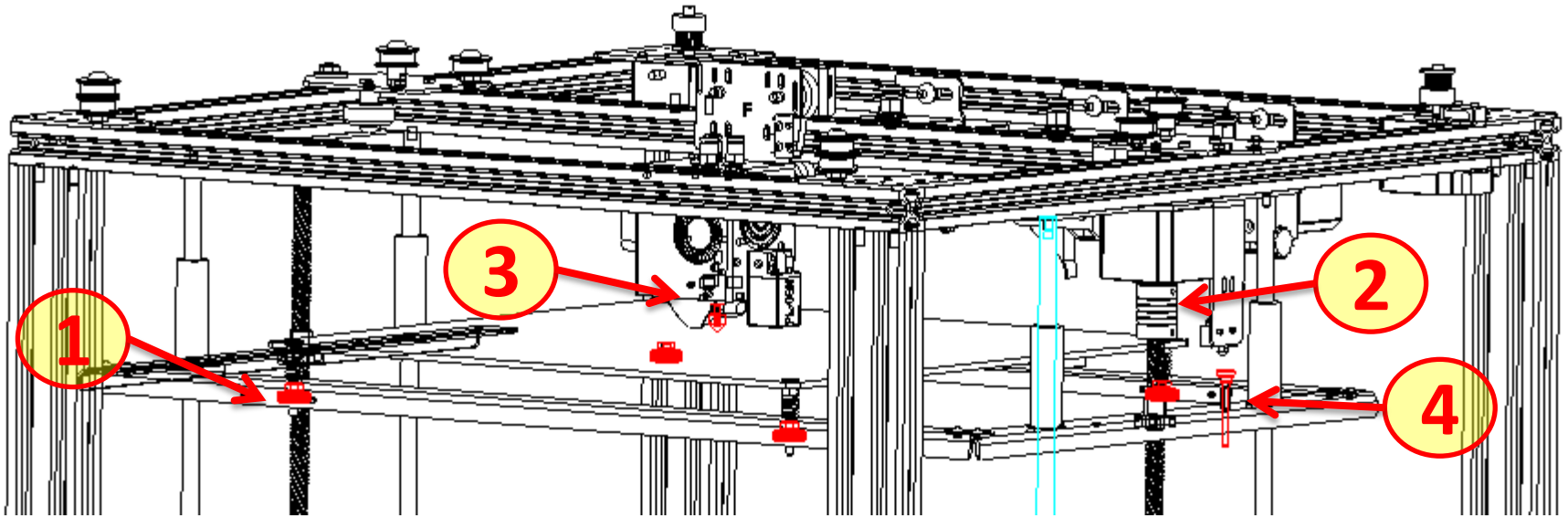
Level the Z aixs - step 2

Step 2: adjust the position of Z ENDSTOP, steps as following:

1. Adjust four hand nuts under the hot bed (fig 1), so that the distance is almost the same between the hot bed and the hot bed bracket (The end of the screws are flush with the hand nuts).

2. Rotate the coupling (fig 2) to move up the hot bed when the nozzle (fig 3) is almost touched the hot bed.

3. Adjust the height of ***Z offset adjusting screw*** (fig 4) and stops when the Z- ENDSTOP has been ***triggered***, lock the screw by nylon pole after finish.



!!ATTENTION!!

Take care when installation, to avoid electrical shock hazards!

Set the 110V/220V swicth (on the side of power supply) to correct position according to your city power voltage!

DC-IN, HOTBED has lager operating current, please make sure these wires contact well with the terminal.

Double check the wiring! INCORRECT WIRING MAY DAMAGE THE ELECTRONIC DEVICE!

Stop working immediately if the motor has abnormal vibration or noise, otherwise the driver modules may be damaged!

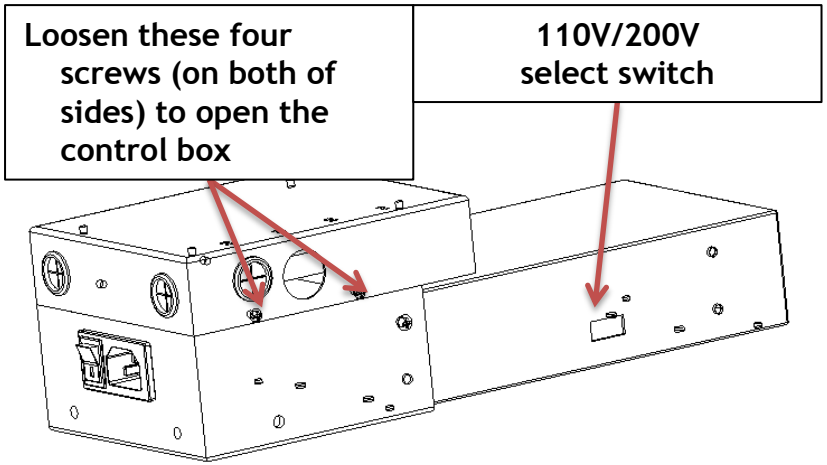
Make sure the hotend cooling fan is working when the nozzle temperature is over 60 degree, otherwise check the wiring again.

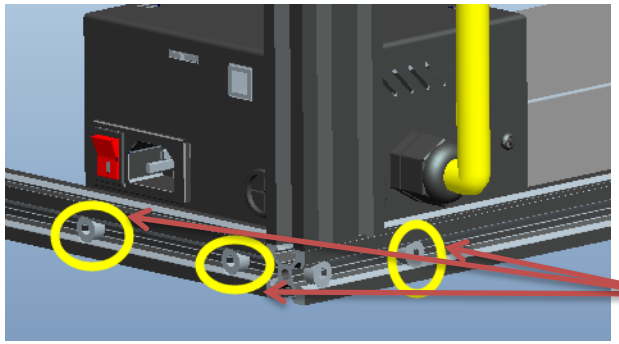
Put the motor wire to the grooves of profile and cover them by plastic profile cover, and using cable tie to wrap the free wires.

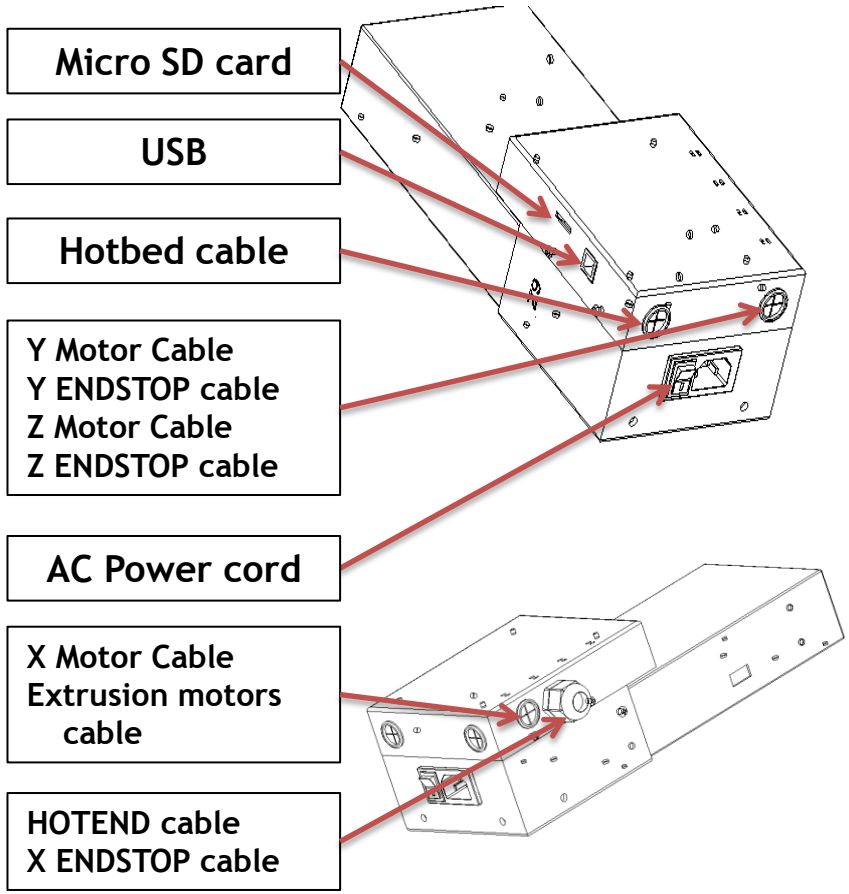
Install control box

2

Step 1: Open the control box and wiring the hotend wires to control board.
Step 2: If your city power is 110V, set the power select swicth to 110V.
Step 3: Install the control box to the bottom-back-right corner of the frame.

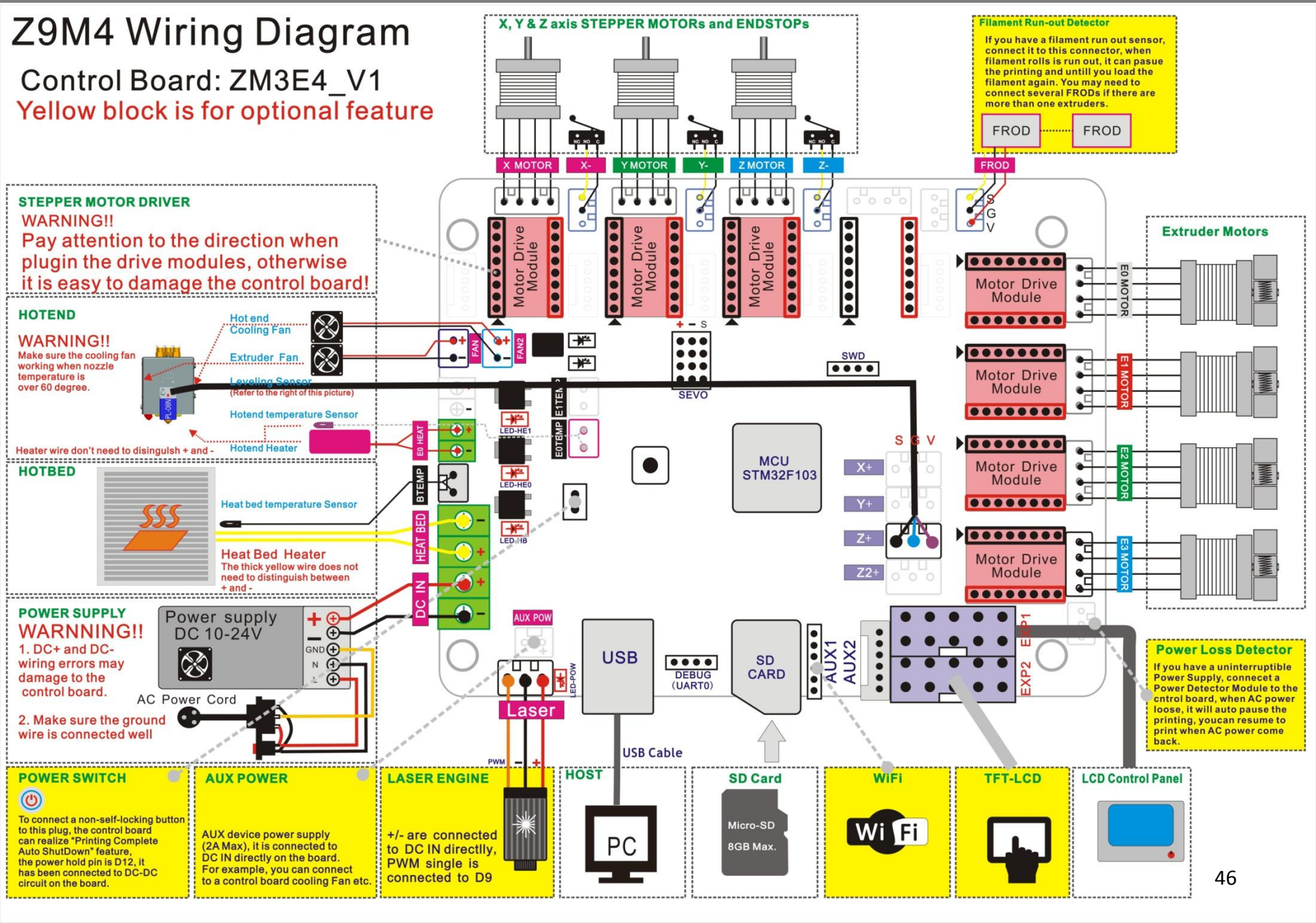




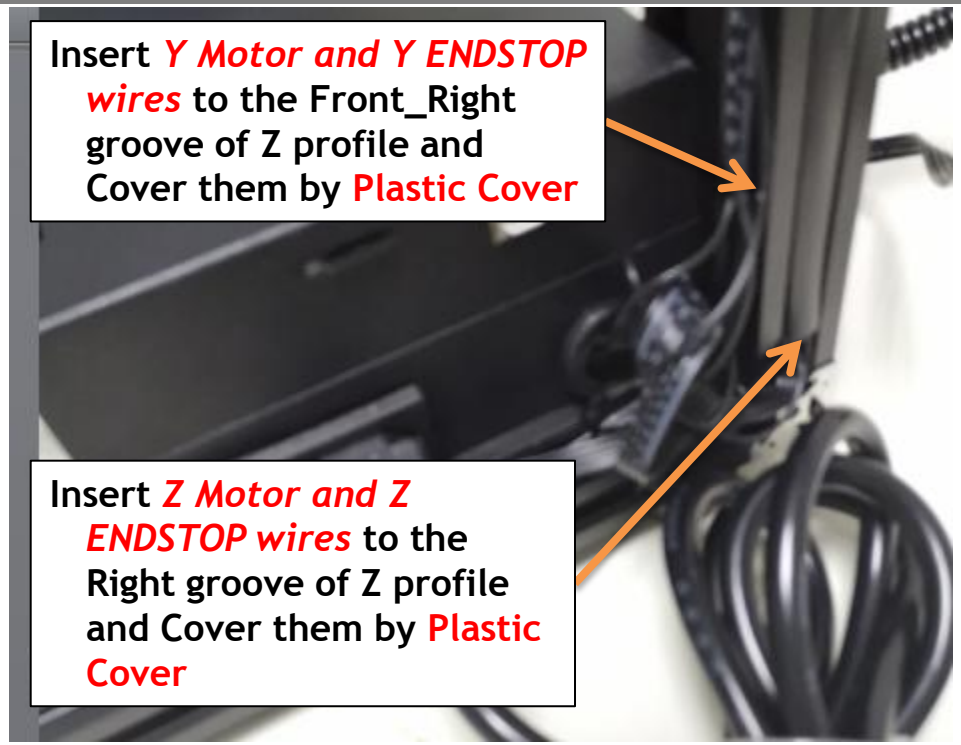


Zonestar

Wiring Diagram

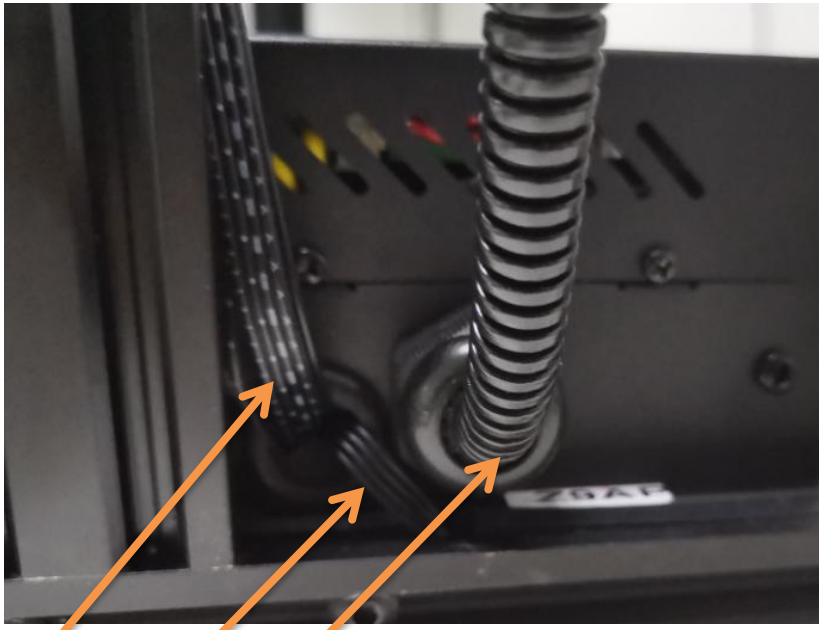


Layout the Wires



Insert *Y Motor and Y ENDSTOP wires* to the Front_Right groove of Z profile and Cover them by Plastic Cover

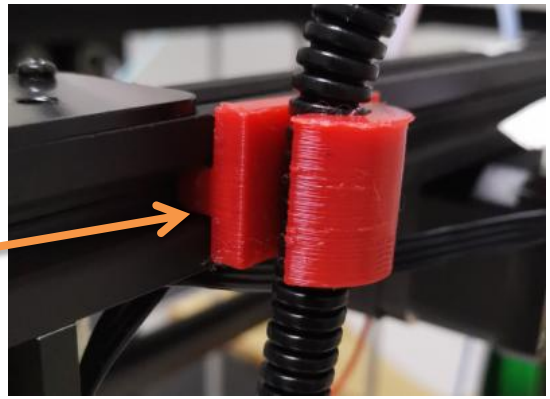
Insert *Z Motor and Z ENDSTOP wires* to the Right groove of Z profile and Cover them by Plastic Cover



Insert *Extrusion Motors' wires* to the Left groove of Z profile and Cover them by Plastic Cover

Insert *X Motors' wires* to the Left groove of Z profile and Cover them by Plastic Cover

Printer head wires

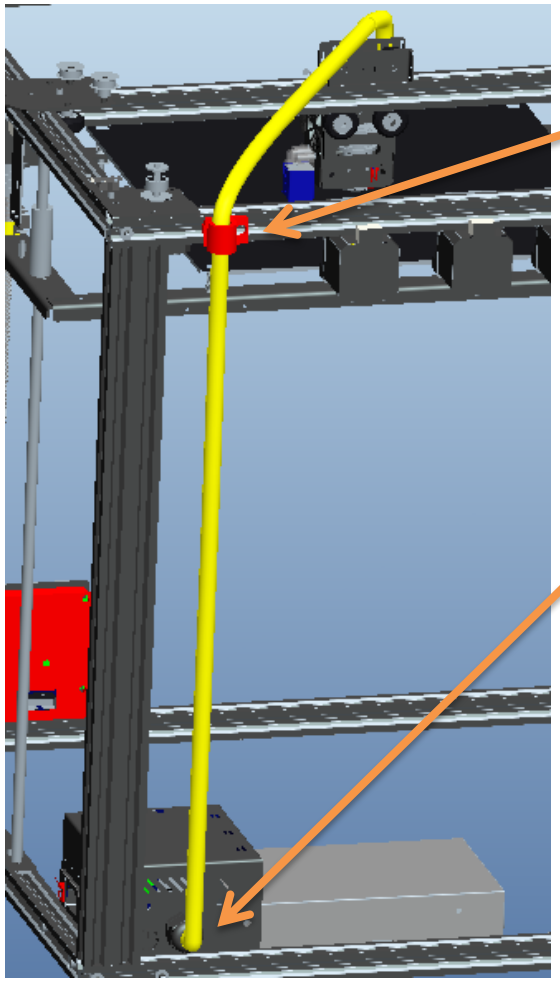


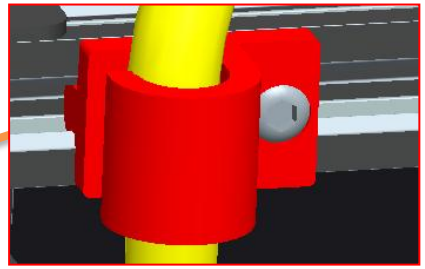
Zonestar

Layout the Wires

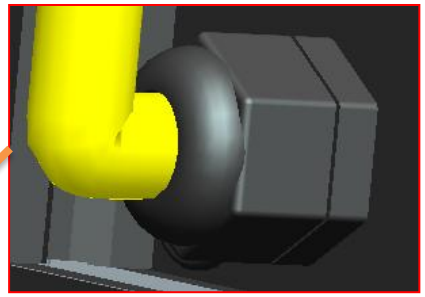
24

TIPS: Insert the wires to the groove of profiles, and then and hide the wires by **Plastic Cover**





Install hotend wire clip to hold the corrugated pipe



Install a Bellow Seal Joint to the control box

Y Motor Cable
Y ENDSTOP cable
Z Motor Cable
Z ENDSTOP cable

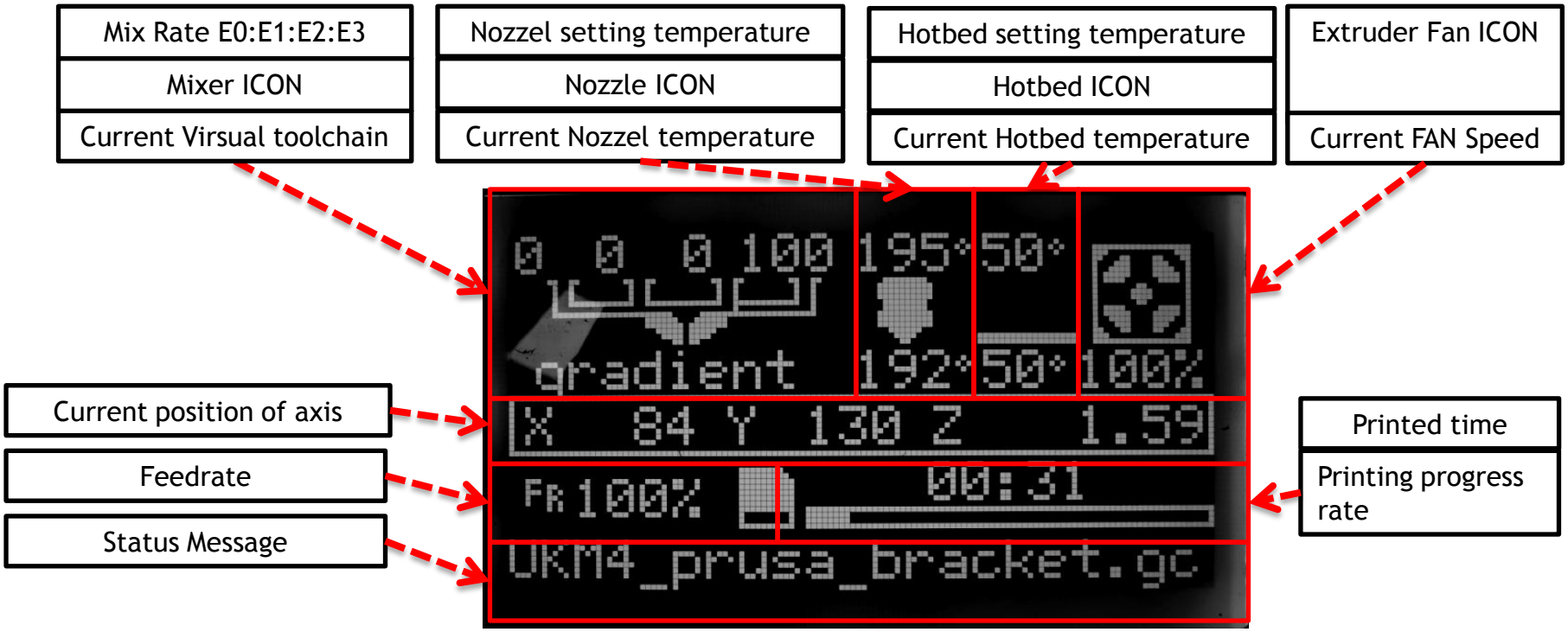
HOTEND cable fitting

X Motor Cable
Extrusion feeder cables

Zonestar

LCD Menu and Operation

Knob operation: <***Clockwise rotation***>: Next Item / Value +. <***Counterclockwise rotation***>: Previous Item / Value -. <***Push***>: Enter / Execute.



For details on the LCD menu, please refer to **"LCD Menu Description.pdf".**

Virsual Tool Chain: In singel color or general multicolor printer, each extrusion motor corresponds to one nozzle, then one extruder + one nozzle constitutes one tool chain; In mixing color extruder, multiple extrusion motors correspond to one nozzle. Setting different rotation ratios of extrusion motors can form multiple **virtual tool chains**. Z9m3 has up to 16 virtual tool chains. About detail, please refer to "**Mixing Color Hotend Reference Guide.pdf**"

Feedrate: When printing from an SD card, adjusting the feedrate can adjust the printing speed, it is based on the speed set by the gcode file when slicing.

Verify wiring

After finish to assemble and wiring, please following the steps below to verify.

Step 1: Before turning on the power, confirm again:

- ✓ Check if it has been set correctly of the 110V/220V power voltage select switch.
- ✓ Check if the components are connected correctly. Especially, DC+ and DC- of the DC power didn't reverse, the wiring is in good contact with the terminals and no wires are shorted.
- ✓ Check if the cable of LCD is connected well to EXP1 connector.

Step 2: Check temperature sensor:

Plug in the AC power cord and turn on AC power, watch the LCD screen, temperature should be almost the same with ambient temperature.

Step 3: Check X, Y and Z axis Motors and ENDSTOPS:

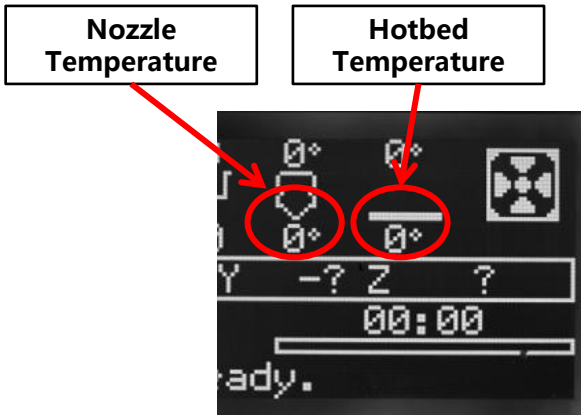
DO: **Motion>>Move axis>>Move X/Y/Z>> Move 10mm. Enter and rotate knob to move the X/Y/Z axis.**

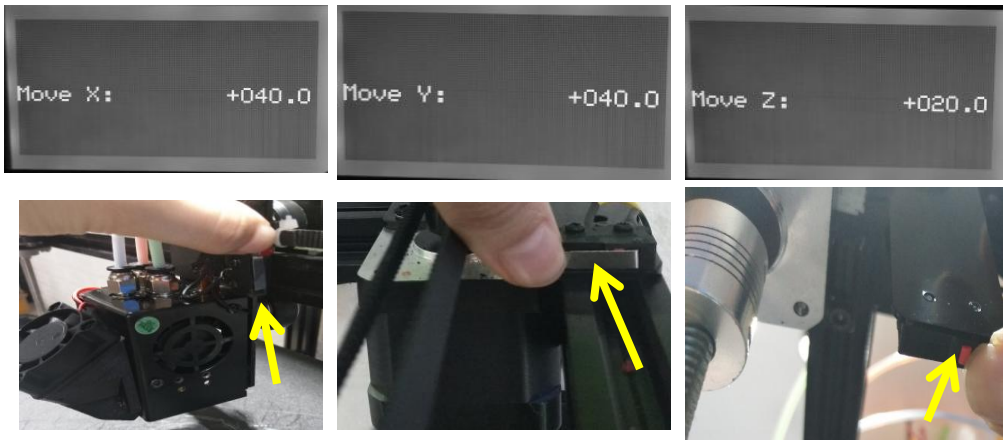
CHECK: Check if the print head can move left/right (X axis), front/back (Y axis), or the hotbed can move up/down (Z axis).

NOTE: If the X and Y can't move correctly, e.g. when moving X or Y, the print head move in 45 degrees, it means that x motor or Y motor does not working, please check the wiring.

CHECK: Press and hold the **X/Y** limit switch, and try to reduce the value of ***Move X/Y***, the print head should stop moving, otherwise check the connection of the **X/Y** limit switch.

CHECK: Press and hold the **Z** limit switch, and try to reduce the value of ***Move Z***, the hotbed should stop moving, otherwise check the connection of the Z- limit switch.

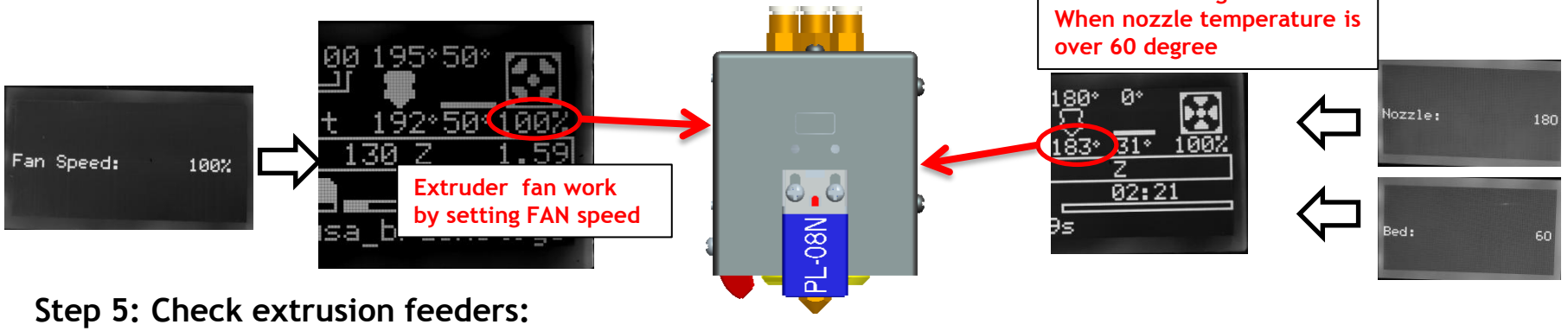




Verify wiring

Step 4: Check heaters and Fans:

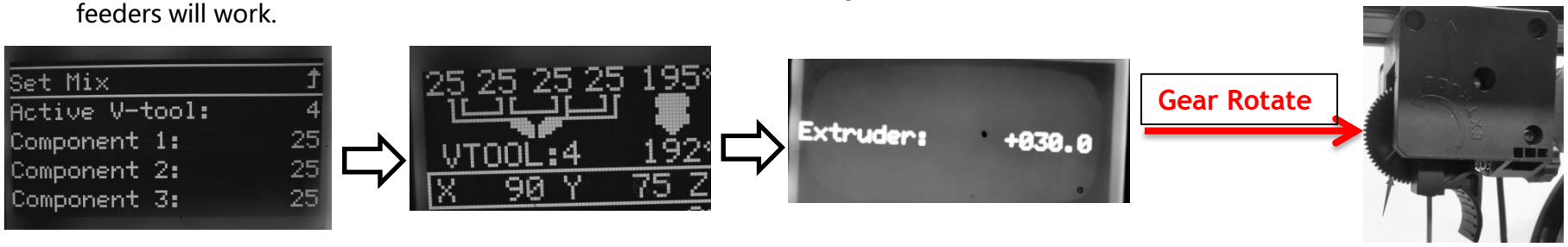
1. ***Temperature>>Nozzle: 180,*** set the nozzle temperature to 180 degrees, and then return to info menu, the nozzle temperature will rise, usually it is one degree per seconds or so.
2. ***Temperature>>Bed: 60,*** set the heat bed temperature to 60 degrees, and then return to info menu, the hotbed temperature will rise, usually it is one degree per 2 seconds or so.
3. **Check HOTEND cooling fan.** When the nozzle temperature is over 60 degrees, the cooling fan on the side of print head should work.
4. **Check Extruder fan, *Temperature>>Fan Speed: 100%,*** the extruder fan should work.



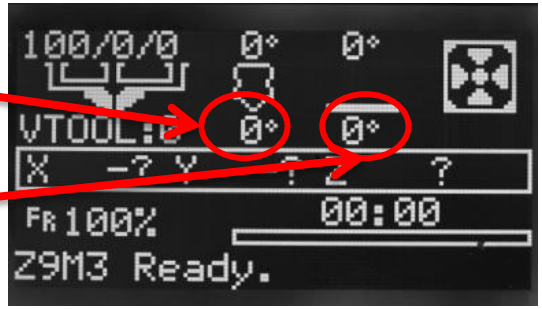
Step 5: Check extrusion feeders:

1. ***Temperature>>Nozzle: 180,*** set the nozzle temperature to 180 degrees, and then return to info menu, waiting for the temperature reached to the setting.
2. ***Set the mixing ratio of all extruders to the same (25:25:25:25):***

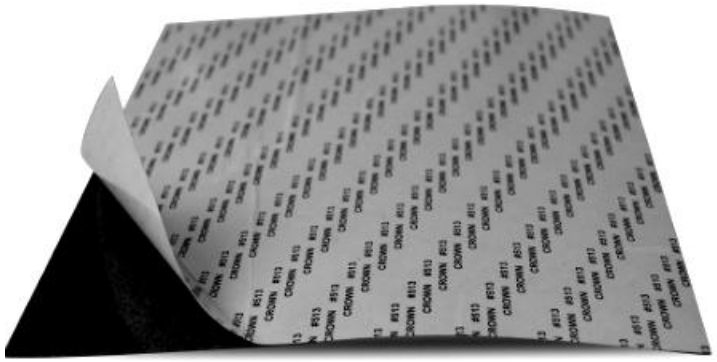
   Mixer>>Set Mix>>Active V-tool: 0>> set to Active V-tool: 4
3. ***Move Axis>>Extruder>>Move 10mm>>Extruder: +20mm***, watch the gear of the extrusion feeder, and check if all of the extrusion feeders will work.



Quickly Trouble-shooting

LCD does not display after Power on	1. The backlight of LCD does not light up. Possible reasons: The AC power cord is not plugged in; DC+ and - are reversed; the power socket are disconnected with power supply. 2. The backlight of LCD light but has not characters. Possible reasons: LCD cable is reversed; firmware error or lost;
Error temperature	**Hotend temperature sensor doesn't connect well** **Hotbed temperature sensor doesn't connect well** 
Motor or extrusion feeder does not work properly	1. The power supply does not work (Note:USB can also supply +5V power and let the LCD display, but can not supply power to the motors and heater). 2. The motor cable is disconnected. 3. The motor drive module didn't connect well with the socket of control board. 4. Heating the nozzle to over 150 degrees before extruding.
Error Motor Direction	1. The motor is not connected to the correct connecotor of the control board, such as exchanged the X and Y sockets. 2. The wire sequence of the motor cable is incorrect. 3. The firmware version is incorrect.
Issue of limit switch(ENDSTOP)	1. The wire of the limit switch is disconnected to the control board. 2. The limit switch is connected to the wrong connector, for example, exchanged the X and Y limit switches. 3. The wire is disconnected witht the limit swich. 4. Check the singnal of the limit swith, it should be connected to pin "**S**" and "**GND**" of the connnector on control board.
Issue of heatbed and hotend	1. **The printer reboot automatically when heating the heat bed or nozzle.** Check if the AC power supply voltage selection switch is set correctly and the DC power cable is connected well. 2. **Hotend cannot be reached to the setting temperature.** Check if the thermistor is missing from the heated block. Check if the printhead heater cable is connected well. 3. **Hotbed cannot be reached to the set temperature**. A)Check if the wiring is contact well. B)Check If the ambient temperature is less than 5 degree.

Paste the hotbed sticker



Remove the paper

Paste on the hotbed

NOTE:

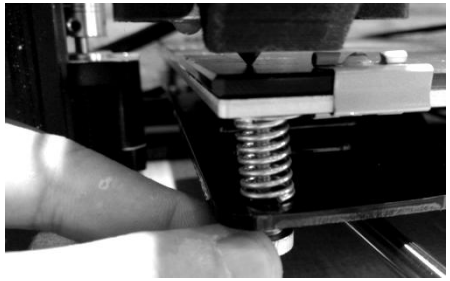
Take care when pasting, avoid the influence of air bubbles cause the hot bed is not smooth.

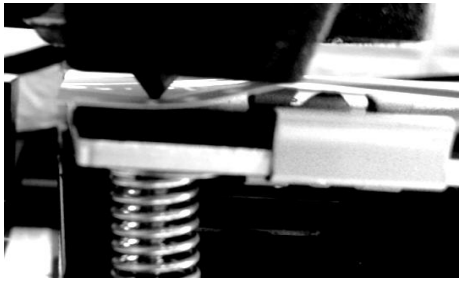
Tips:

First tear off one side of the sticker on the back, then Level with a shovel from one side to the other side, and then gradually tear off the sticker on the back.

Prepare to print - level the hotbed

1. **Clean nozzle:** make sure there aren't any filament at the end of nozzle, if not, remove it by a diagonal pliers.
2. Choose “Motion”>> “Auto Home”>>, wait the hotend go to the orig position.
3. Watch the nozzle and make sure the nozzle is higher than the bed, otherwise tighten the hand nuts under the bed to pull down the hotbed or loosen these nuts to move up the bed.
4. Choose “Motion”>> “Level Corners”>>, the nozzle will go to the corners, adjust the hand nuts under the hotbed, let the nozzle almost touch the hotbed. In order to get a properly distance, you can put a A4 paper on the hotbed, and when the distanse between the nozzle and hotbed can only insert a paper, it will be perfect.
5. Choose “next corner”, and adjust again. Repeat this step again and again, until all of the four corner at the same height.





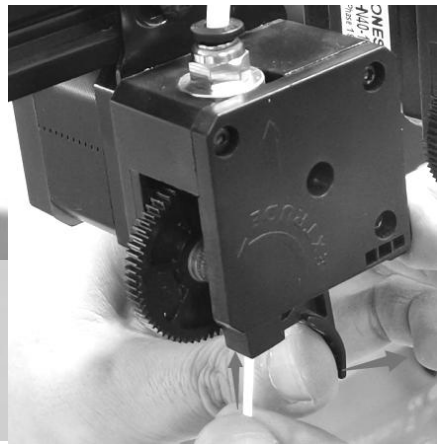
Home all axis → start “level corners” wizard → Adjust bed height → put a paper on the bed to measure the height

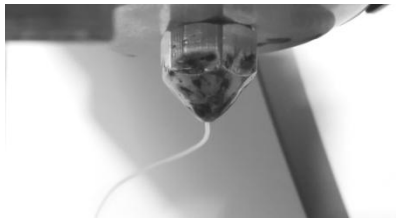
Prepare to print - Load Filament

1. Preheat nozzle: Temperature>> Nozzle, set it to about **180** degree (for PLA) or **220** degree(for ABS and PETG filament), then nozzle will be heated. **Waiting nozzle temperature reached to setting.**

2. Press the handle on the extrude feeder and insert filament, until the filament **enter to the hotend (make sure the filament enter).**

3. Choose “Motion”>> “Move axis”>>”Extruder”>>”Move 1mm”>>”extruder: ****mm”, then Clockwise rotate the knob slowly, until you can see the filament flow from the nozzle.





Preheating the nozzle → Use a diagonal pliers to cut off the head of filament → Press the handle and insert filament into the extruder engine → Watch the nozzzle, until the filament is flowing out

NOTE: Only load one filament to the center channel of the hotend in this step, and make sure the others channels has been closed!

Print a test 3D object (Print from SD card)

NOTE: We strongly recommend that you start with single color. When the product leaves the factory, we have closed two channels with three *hotend cleaning tools*. You can use the channel that is not closed to print your first works!

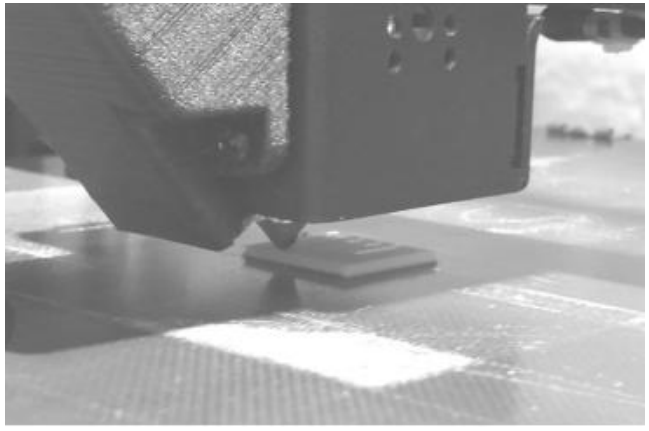
1. Insert the SD card to the SD card socket on the control box, and then power on the control box. ***NOTE: the touchpad of Micro SDcard pointing up***

2. Choose “Print from Media”>> Choose “Test_gcode\Single Color\xyz_cube.gcode”, push the knob to start printing.

3. Wait the printer to finish heating and start to print, watch the distance from nozzle to bed, **double click** the knob of LCD menu and set the z offset if the distance is not perfect, let the filament can stick on the hotbed well.

Insert SD card to control box and then start to print

Adjust Z offset and let the the filament paste to bed well



Wait for printing finish!

More

1. About slicing:

The printer can only accept gcode file, if you want to print your own 3d model files, usually the file suffix are ***stl, AMF, Obj, etc.*** you need to convert it to a gcode file, this process is called ***slicing***. About how to slicing a 3d model file, please refer to this guide "***Slicing guide for Mixing Color Printer.pdf***."

2. About bed auto leveling feature:

Many factors will lead to the problem of uneven hot bed. This printer is equipped with a Proximity sensor for automatic leveling of the hot bed. With this sensor, you can correct the unevenness of the hot bed. About more information, please refer to this guide: "***Auto leveling feaure user guide (PL-08N).pdf***".

3. About mixing color feature:

This machine is equipped with a mixing extruder, which can print single color, multi-color and gradient colors object. For the introduction of mixed color printing, please refer to this guide: "***Operature guide for Mixing Color Printer.pdf***".

4. About power loss recover feature:

When you print from SD card, and power is lost when printing, the printer will resume to Print from the last layer which printed before power lost automatically, about the detail, please refer to this guide: "***Power loss recover feature user guide.pdf***".

NOTE: if you can't find these guide in your SD card, please download from the below link:! **https://github.com/ZONESTAR3D**

Zonestar

Upgrade more features

You can add more functions in the machine by adding accessories, including:

1. **Bed auto leveling feature.**

   Default we have added a proximity sensor as a bed leveling sensor, you don't need to buy it again, about how to use this feature, please refer to the guide in this directory of SD card **"\Bed Leveling\PL-08N".** If you want to add Bltouch (3D Touch) sensor to get a better leveling result, please buy a bltouch from our store, and ask the user guide link from our sales.

2. **Auto shutdown after printing.**

   You can buy a push-button and install it to the control box, to realize the function of automatic shutdown after printing. For details, please refer to ***"how to upgrade auto shut down feature.pdf"***

3. **Filament Run out Feature.**

   You can buy FRODs (suggest is 3 pcs) and connect them to the control board, to realize the functions of automatics pause printing when the filament rools is Run out. For details, please refer to this file: ***"How to upgrade filament run out sensor.pdf"***

4. **Glass hotbed or Magnetic hot bed sticker**

   If you want to print ABS filament, we suggest you buy a Glass platform and mount to the hotbed, please buy a super galss from our store.
   Magnetic hot bed sticker is a sticker, after used it, the printed object will be easier to remove from the hotend after printed.

Upgrade more features

5. Laser engraving: (Need install extra software app)

You can make your 3D printer have the function of laser engraving. If you are interested in this function, please contact our business personnel to purchase.

6. Silent motor driver module : (need upgrade firmware)

If you want your printer to work more quietly, we recommend that you buy TMC2208 driver modules to replace the original A4988 driver modules, please contact us to purchase.

7. TFT-LCD screen and Wireless Control: (need upgrade firmware)

If you want upgrade your control panel to a TFT-LCD screen, or need to use wireless control feature, please contact us to purchase.