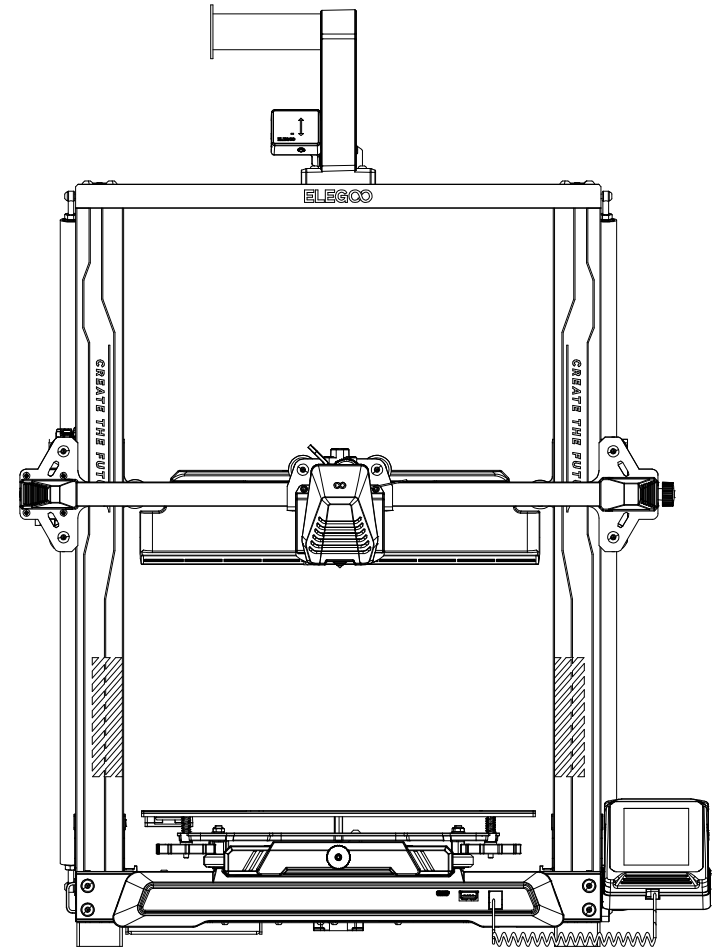




User Manual for NEPTUNE 4 PLUS 3D Printer



Pictures are only for illustration purposes. Actual production products may vary from images

V2.1

Thank you for choosing the ELEGOO Product!

Upon receiving your product, please check that the device is in good condition and all accessories are included. If you encounter any issues during installation, operation, or maintenance, please contact the ELEGOO after-sales team through the official channels below for professional support:

1. Visit our dedicated support page: <https://www.elegoo.com/pages/contact-support>. (We recommend copying the link and opening it in your browser.)
2. Scan the QR code below for one-on-one assistance.



(Note: To ensure optimal performance, each ELEGOO product undergoes rigorous printing tests before shipping. Minor surface scratches may be visible upon delivery; this is normal and will not affect functionality.)

NOTES

1. Do not place the printer in vibrating or other unstable environments, as the shaking of the machine will affect the print quality.
2. Do not touch the nozzle and heated bed when the printer is working to prevent high-temperature burn and personal injury.
3. After printing, please take advantage of the residual temperature of the nozzle and clean the filaments on the nozzle with the help of tools. Do not touch the nozzle directly with your hands during cleaning to avoid burning.
4. Please do product maintenance frequently, and regularly clean the printer body with a dry cloth to wipe away dust and sticky print material under the situation of power off.
5. 3D printers contain high-speed moving parts, so be careful not to get your hands caught.
6. Children must be supervised by adults when using the machine to avoid personal injury.
7. In case of emergency, please cut off the power directly.
8. Before leveling, homing or printing, ensure that the PEI sheet is properly placed on the platform. Failure to do so may result in nozzle collisions with the magnetic sheet, causing damage to both the nozzle and the magnetic sheet.
9. It is essential to ground the machine during operation. Devices that are not grounded or improperly grounded inevitably increase the risk of electrical shock.
10. If the machine is not in use for a long period, please turn off the device and unplug the power cord.

Troubleshooting Guide

A stepper motor of the X/Y/Z axis is not moving or making a noise when “zeroed”

- ① The stepper motor cable could be loose. Please recheck the wiring connection.
- ② The corresponding limit switch may not be triggering properly, please check whether there is any interference in the movement of the corresponding shafts and ensure the limit switch wiring is not loose.
- ③ Loose timing belt may result in rough motion or abnormal noise in the X/Y axis. It can be resolved by adjusting the tension of the timing belt using the rotary knob.

Nozzle Head Assembly is exhibiting Extrusion Anomalies

- ① Check that the extruder stepper motor cable is not loose or disconnected.
- ② Check whether the set screw of the extruder gear is firmly engaged to the motor shaft.
- ③ The heat dissipation of the nozzle assembly may not be enough, verify temperatures and check cooling fan operation.
- ④ For clogged nozzles, try first heating the nozzle to 230°C and pushing the filament by hand to remove a potential clog, or use a fine needle to unclog the nozzle tip while it is heating up.

Model does not Adhere to the Build Platform (PEI Sheet) or is Showing Warping

- ① The key to whether a model can adhere (stick) to the build plate is largely based on the printing of the first layer. When printing the first layer if the distance from nozzle to platform is more than 0.2mm, it will seriously reduce print adhesion.
- ② Try setting the build model first layer option in Elegoo Slicer to [Brim] to improve first layer adhesion, this should also be used to reduce any cases whereby the edges of the printed model are warping or lifting off the build platform.

Model shows signs of Misaligned Printed Layers

- ① The travel speed of the Printer hot end assembly or Print Speed is set too fast. Please try to reduce the Print Speed.
- ② The belts of the X/Y axis may be too loose or the synchronizer pulley is not secured tightly. Check these components.
- ③ The current to the Drive may be too low.

Severe Issues in Printed Model of “Stringing” or “Ringing”

- ① Insufficient retraction distance is causing issues, increase the retraction distance in Cura prior to Slicing.
- ② In many cases, if the retraction speed is too slow, you may need to set the retraction speed higher in Cura prior to Slicing.
- ③ When slicing your model, check the box for “Z Hop When Retracted” and set the “Z Hop Height” to about 0.25mm.
- ④ Print temperature may be too high, which can cause certain filaments to become sticky and stringy. If the printing temperature is too high, it can cause the filament to become too fluid and sticky, resulting in poor 3D printing quality. In this case, lowering the printing temperature slightly can help.

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Machine Parameters

Printer Specifications

Printer Type: FDM (Fused Deposition Modeling)

Maximum Build Volume: 320X320X385(mm³)

Print Precision: ±0.1mm

Nozzle Diameter: 0.4mm

Print Speed: 30-500mm/s

Regular printing speed: 250mm/s

Maximum acceleration: 12000mm/s²

Operating Temperature Specifications

Ambient Environment Temperature: 5°C~40°C

Maximum Temperature of Nozzle: 300°C

Maximum Temperature of Heated Bed: 100°C

Software Specifications

Slicer Software: Elegoo Slicer

Input File Format: STL, OBJ

Output File Format: G-code

Interface: USB Drive, LAN (Network), Wi-Fi

Power Supply Specifications

Input Power : 100-120V/220-240V; 50/60Hz

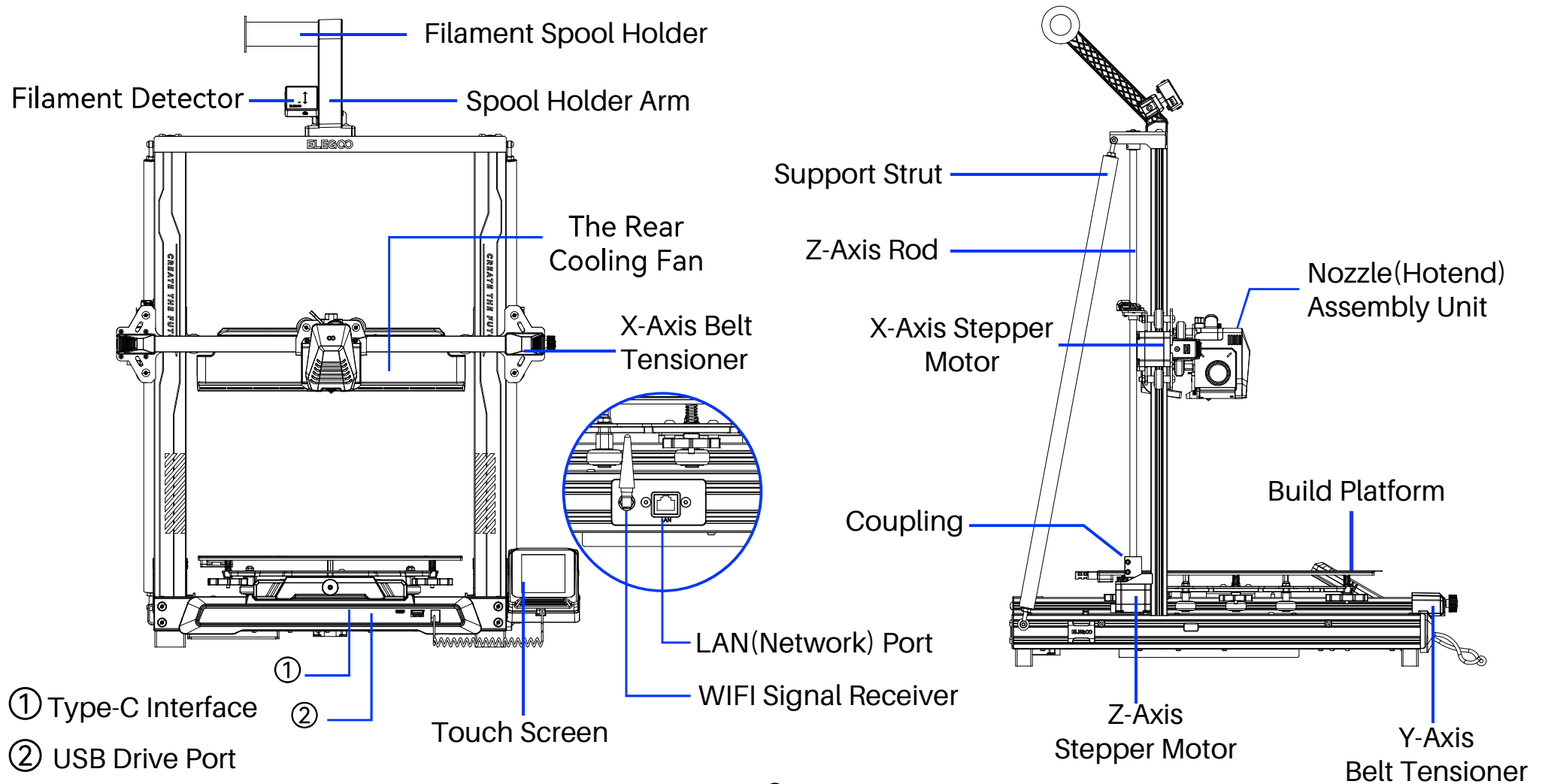
Output Power : 24V

Physical Specifications

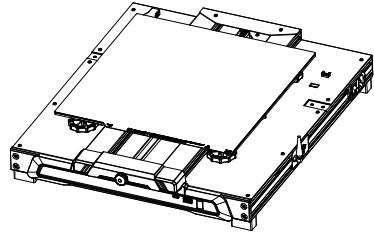
Machine Size: 578 x 533 x 640mm

Net Weight: 14.4kg

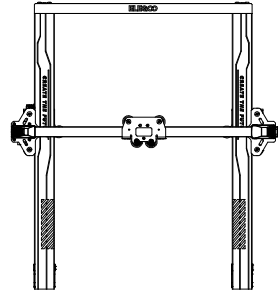
Machine Component Diagrams



Packing List



01 Base Unit



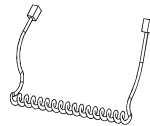
02 Gantry Frame Unit



03 Screen Support Block



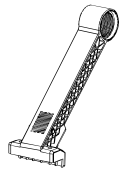
04 Screen



05 Spiral Cable



06 Spool Holder



07 Spool Holder Arm



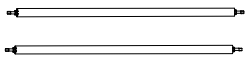
08 Filament Detector



09 The Rear Cooling Fan



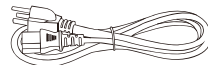
10 WIFI Antenna



11 Support Strut


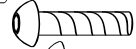










12 Printhead



13 Power Cable

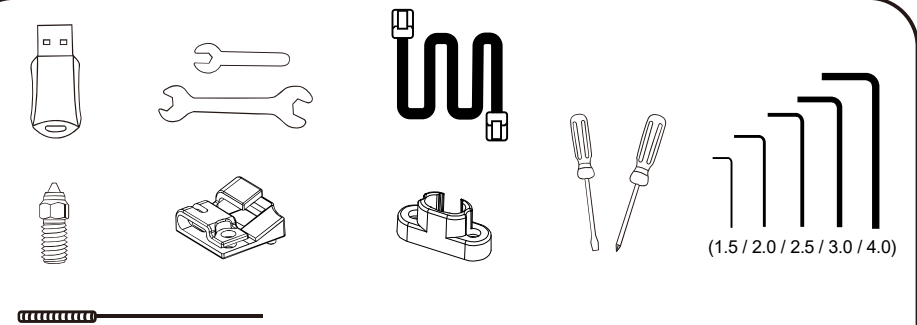
Fasteners

-  (HM5x45) 4pcs
-  (PM4x50) 3pcs
-  (PM4x20) 5pcs
-  (PM4x18) 2pcs
-  (PM3x14) 3pcs
-  (PM4x8) 3pcs
-  (HM4xM3x3) 1pc
-  (PM3x8) 2pcs
-  (HM2x8) 2pcs
-  (FMM5*18*1) 2pcs



Scan to access tutorials

Tools



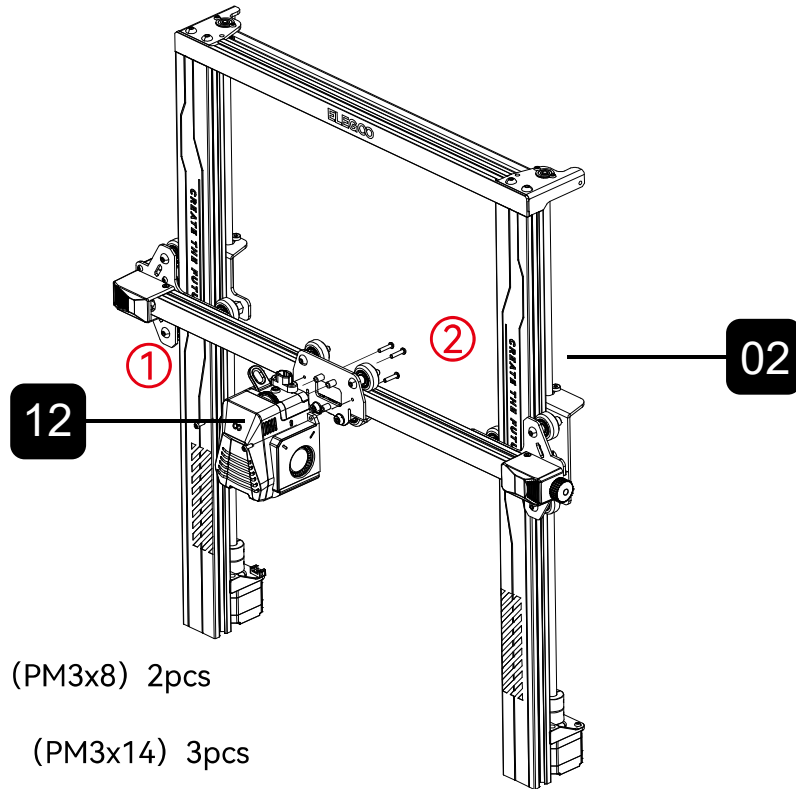
The above accessories shall be subject to actual products, and the pictures are for reference only.

Machine Setup & Installation

Please refer to the included USB Drive for a setup and installation instructional video.

From the rear, attach the printhead assembly using two PM3 x 14 screws to affix the printhead through the holes of the cable strain-relief bracket and two PM3 x 8 screws to affix the underside of the printhead.

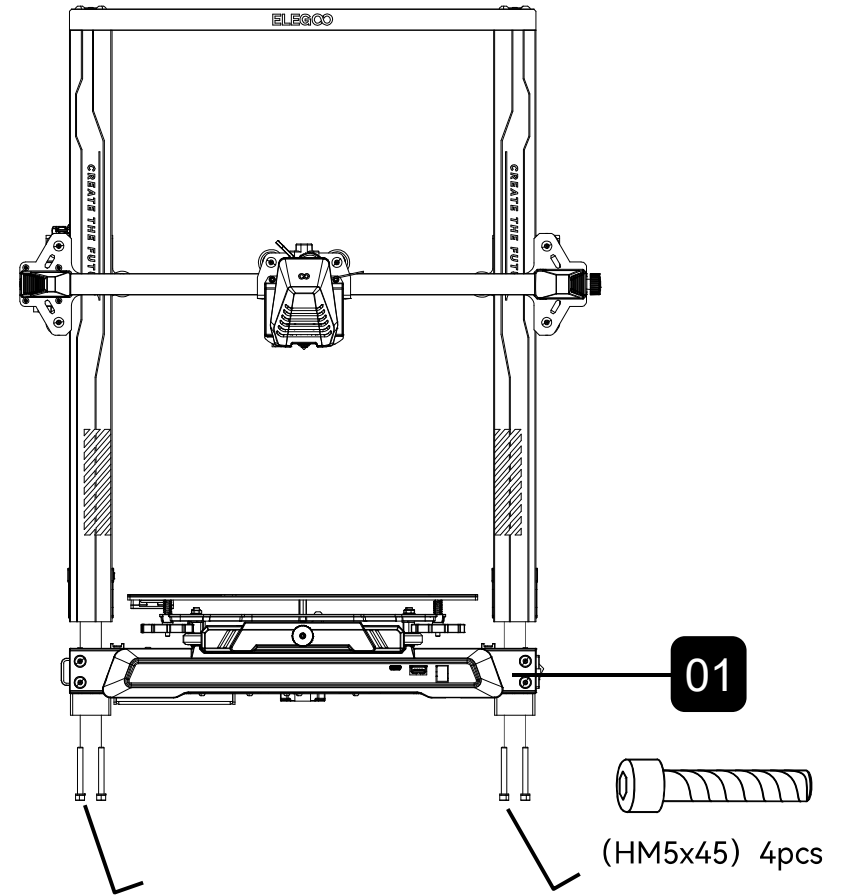
①



① (PM3x8) 2pcs

② (PM3x14) 3pcs

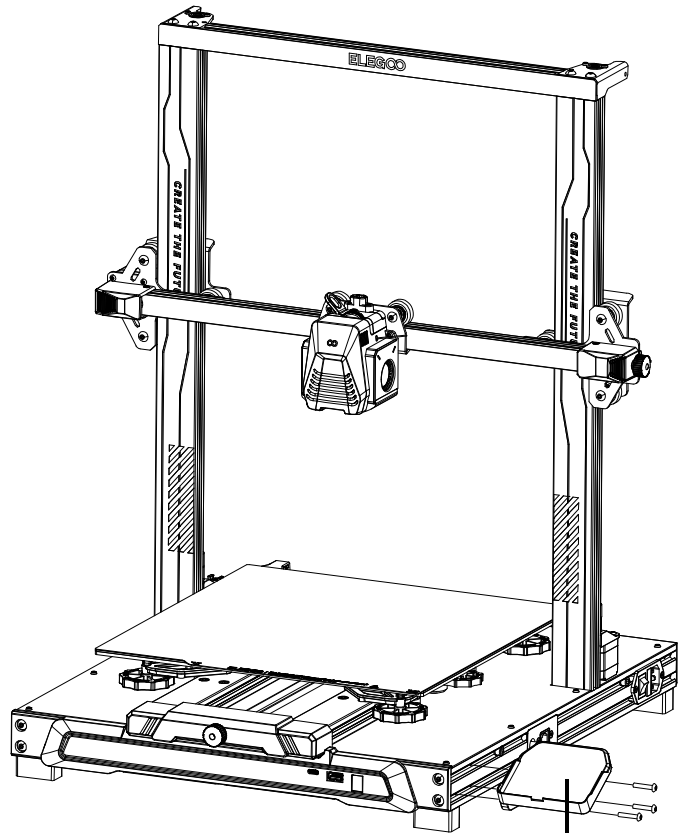
②

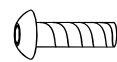


(HM5x45) 4pcs

Machine Setup & Installation

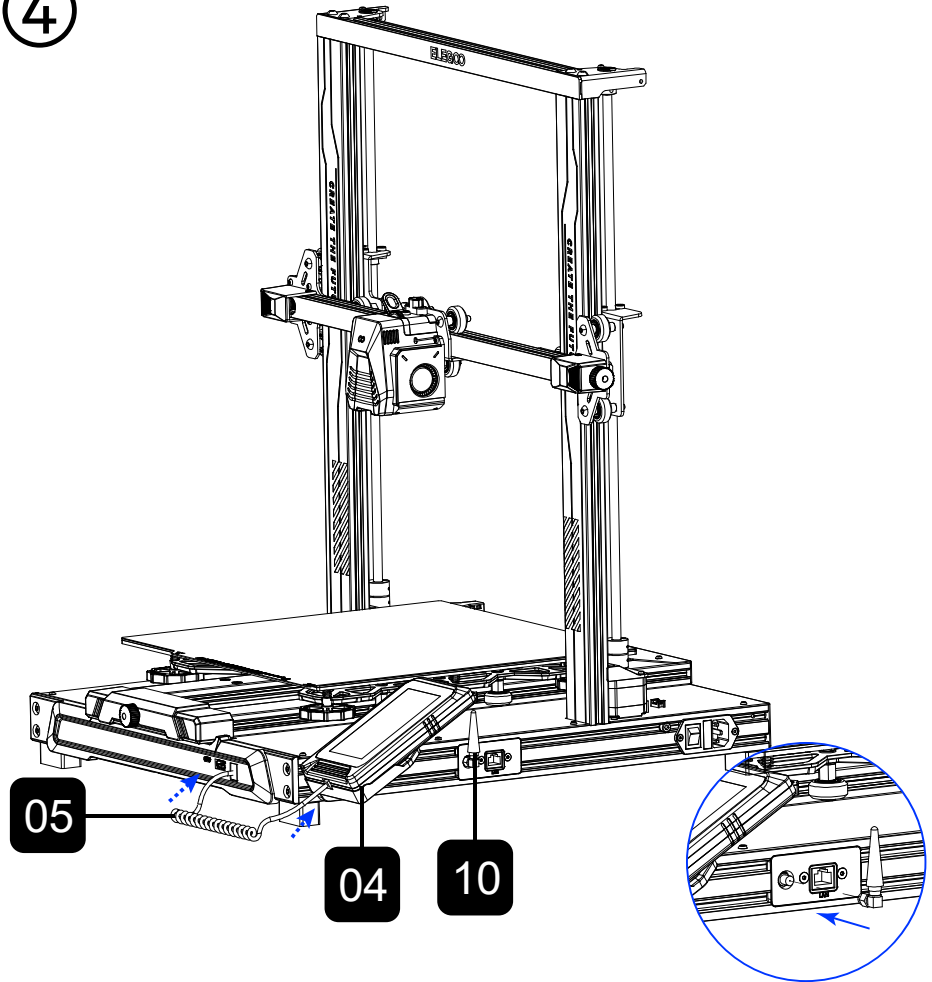
③



 (PM4x20) 3pcs

03

④



05

04

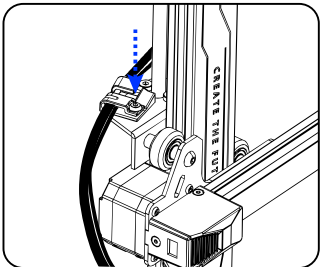
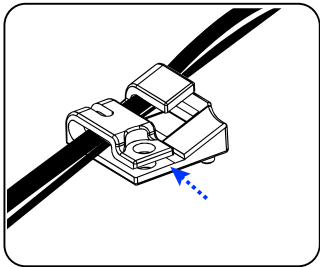
10

5

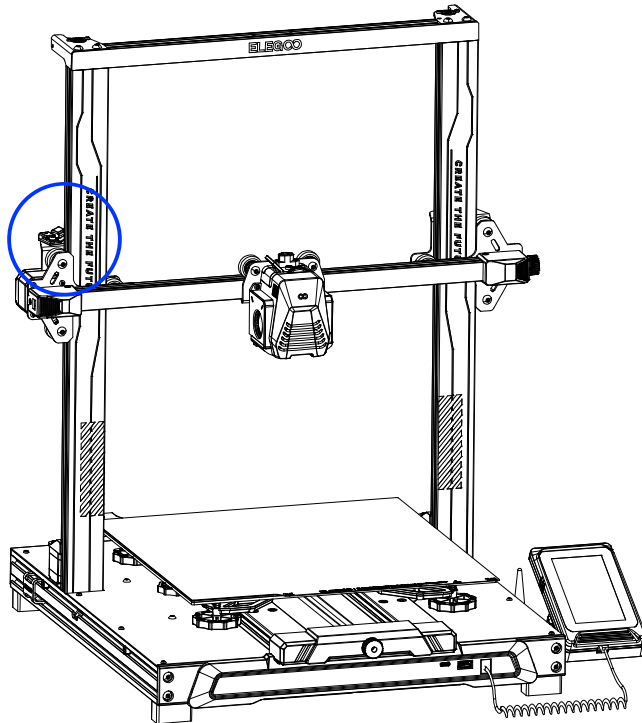
Machine Setup & Installation

⑤

Cable clamp installation:



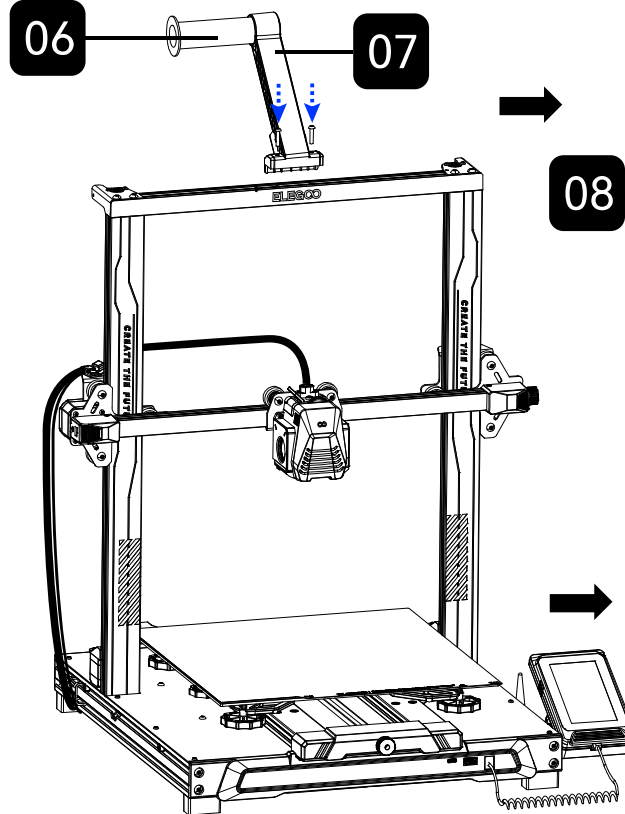
(PM4x8) 1pc



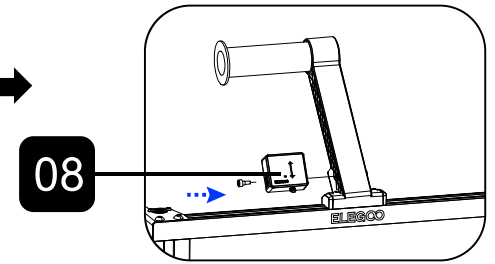
*Please keep a safe distance between the cable and the lead screw during installation to prevent interference and cable wear.

⑥

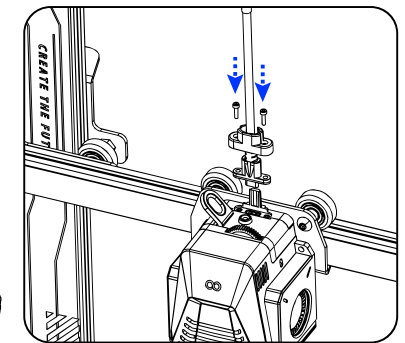
(PM4x18) 2pcs



Filament Detection Sensor Installation:



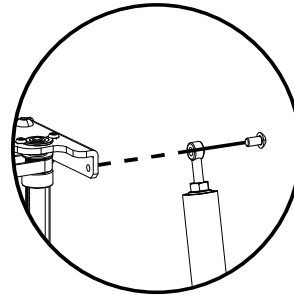
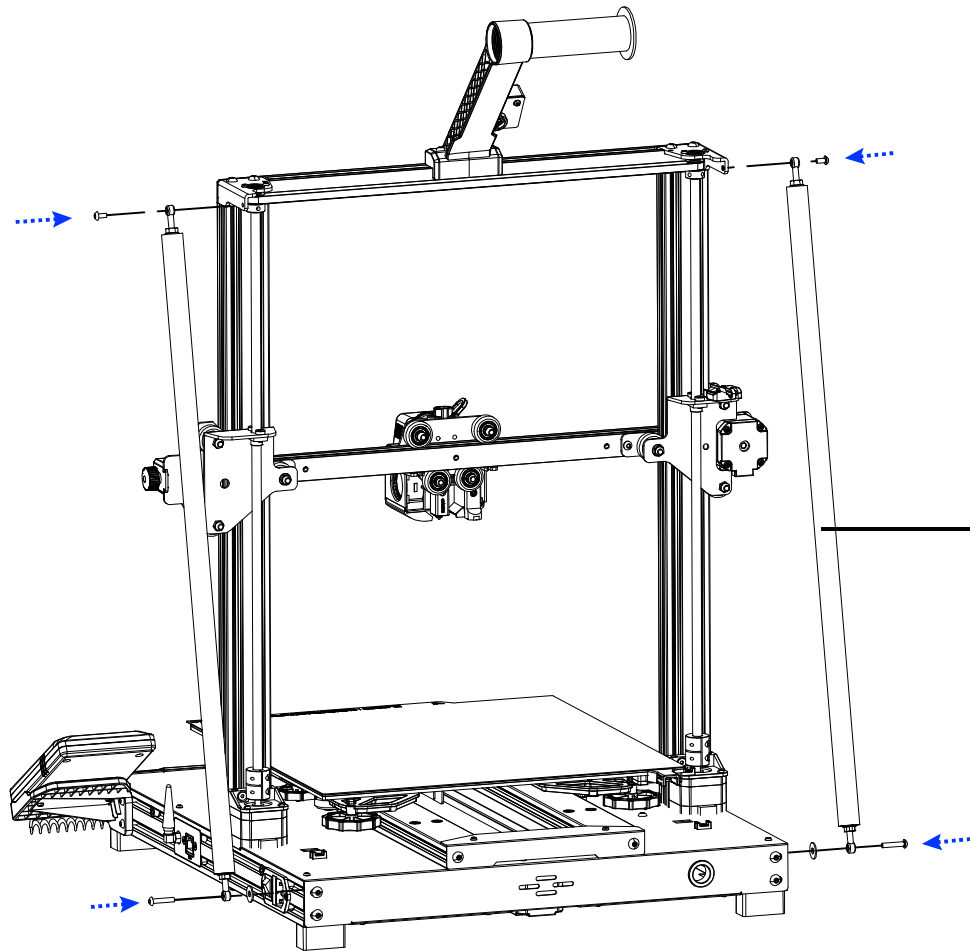
(HM4xM3x3) 1pc




(HM2x8) 2pcs

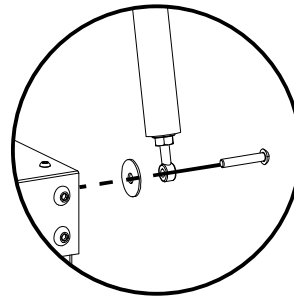
Machine Setup & Installation

7




 (PM4x8) 2pcs

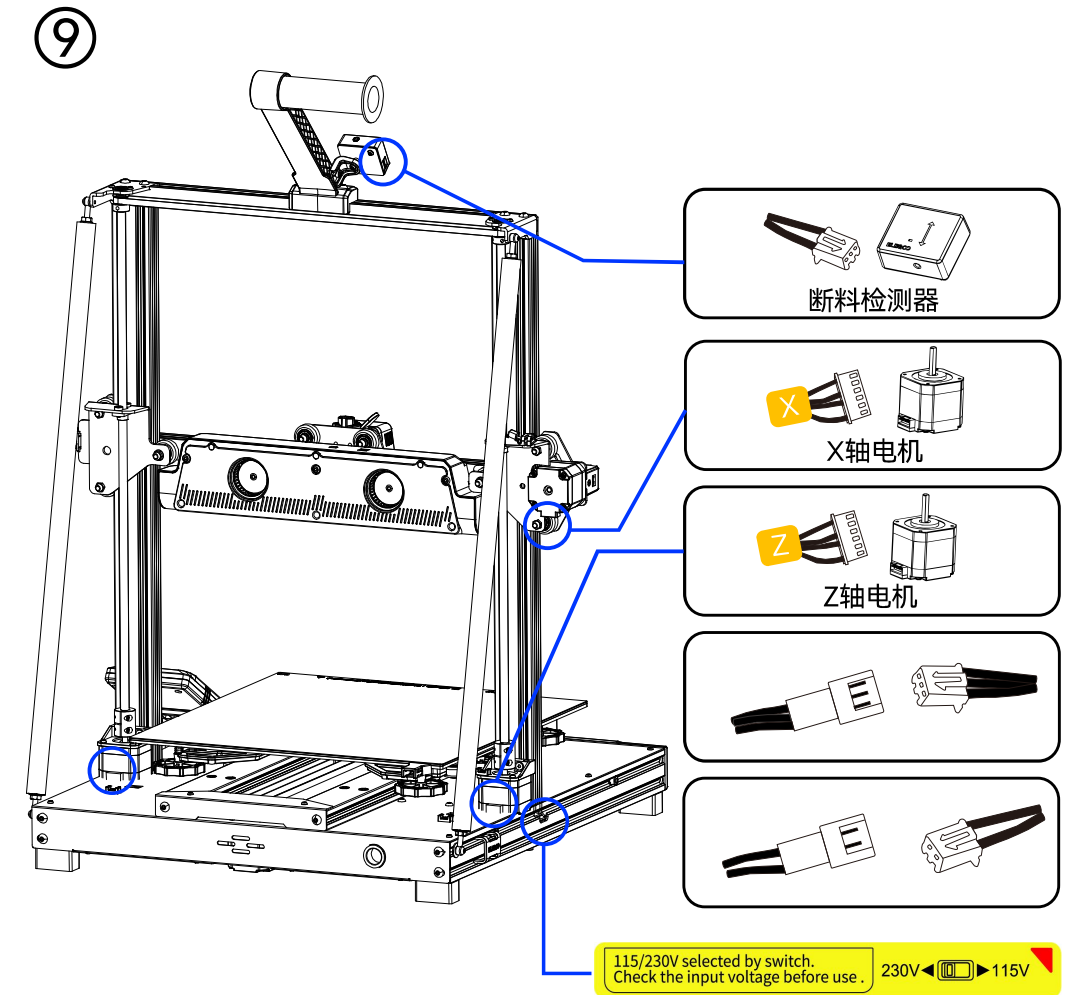
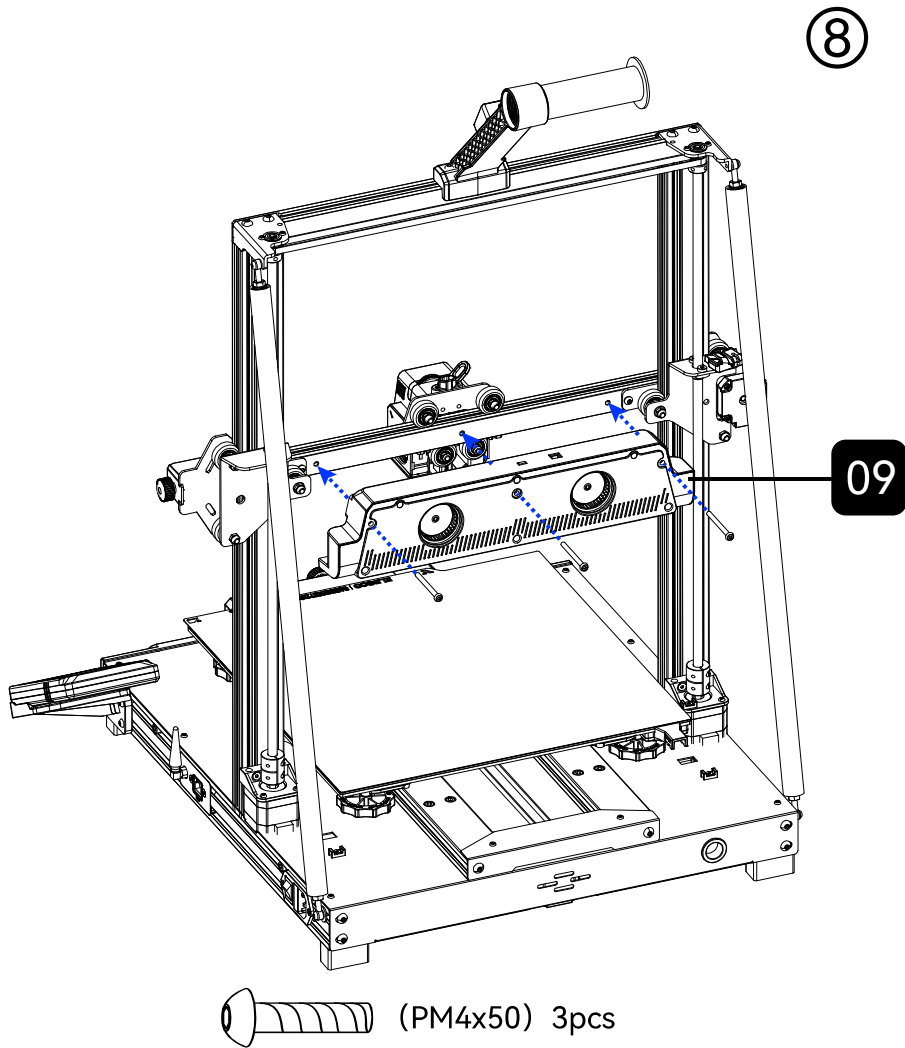
11



 (PM4x20) 2pcs

 (FMM5*18*1) 2pcs

Machine Setup & Installation



8

Supplymentary Introduction

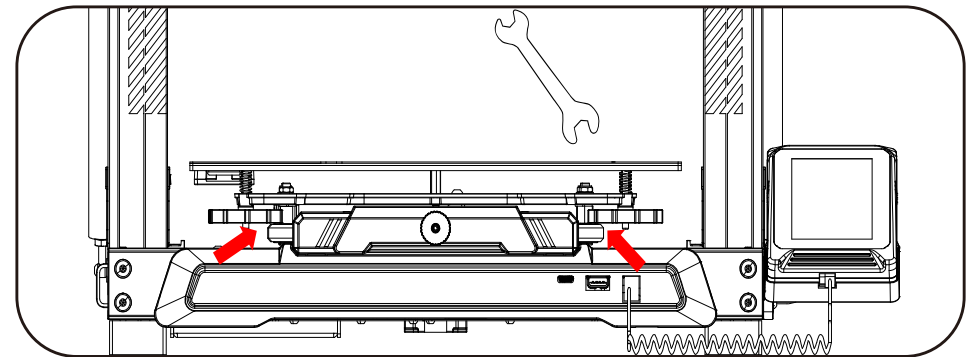
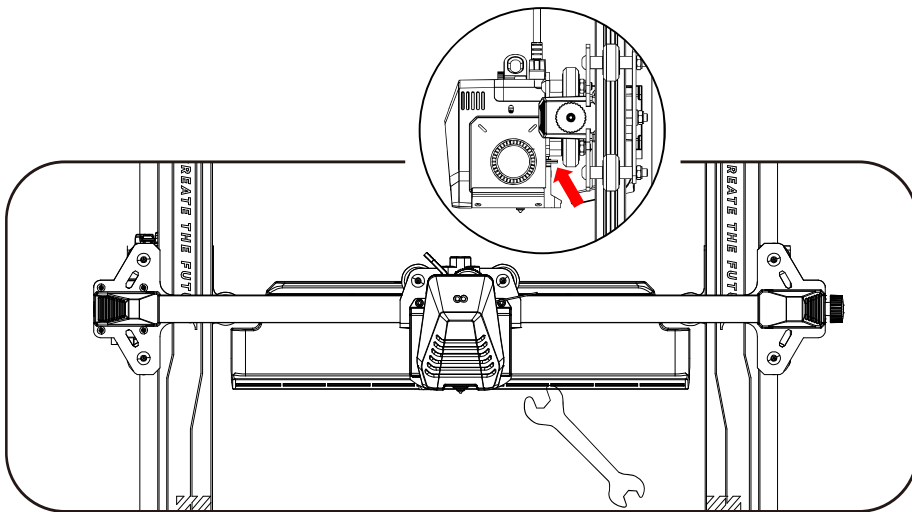
Special Case:

The Y-axis slider plate is adjusted at the factory, but the machine's pulleys may be loose due to transportation.

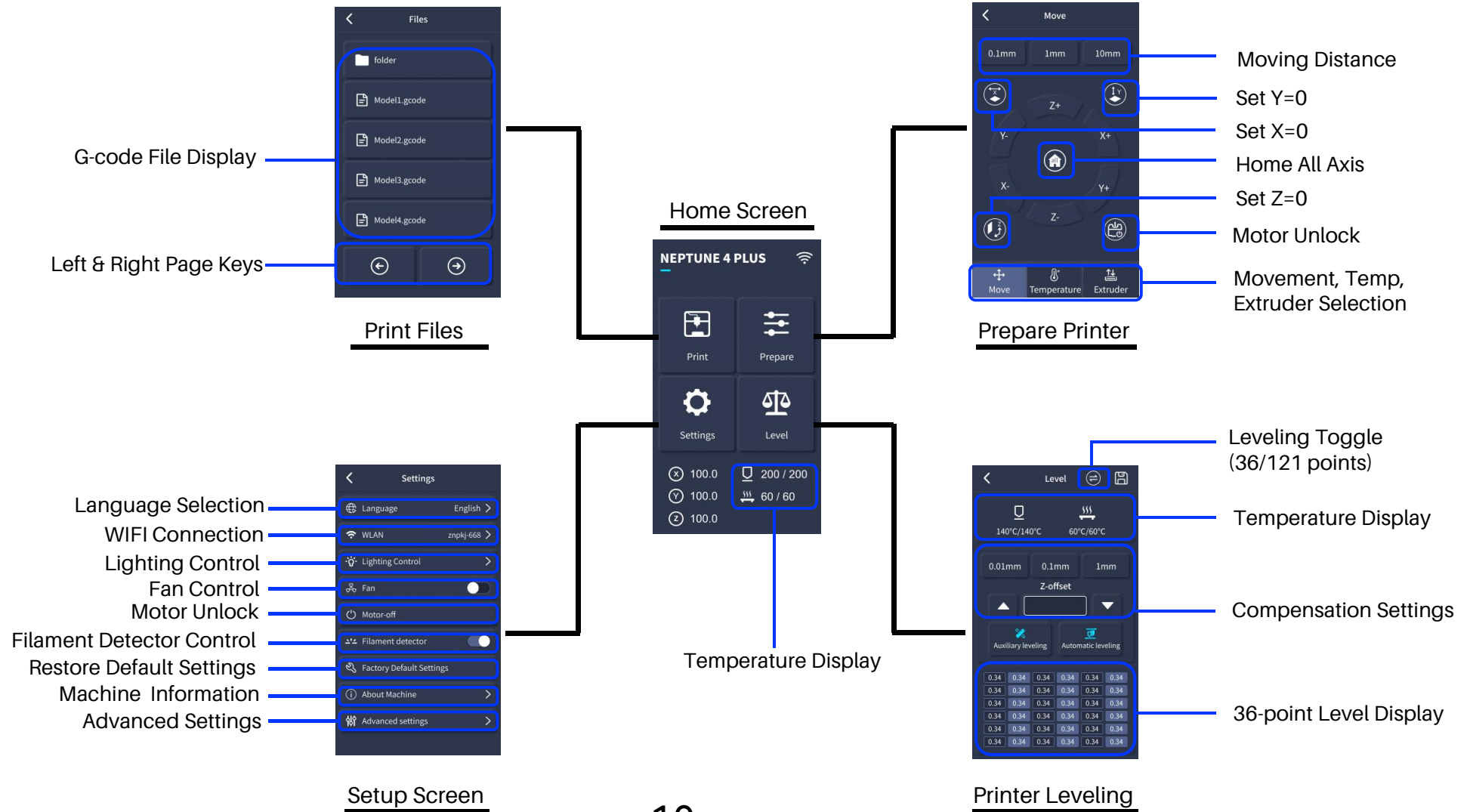
If the printing platform is shaky or loose, you can use an open-end wrench to slowly unscrew the hexagonal isolation column under the platform until the Y-axis slider plate slides smoothly without shaking!

Similarly, you can adjust the hexagonal isolation column underneath the Printhead if it wobbles or become loose.

There are also corresponding isolation columns for the pulleys on both sides of the gantry that can be adjusted.



Display Screen Operation Introduction

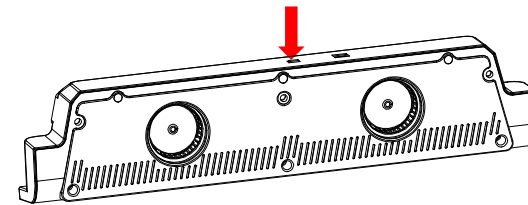
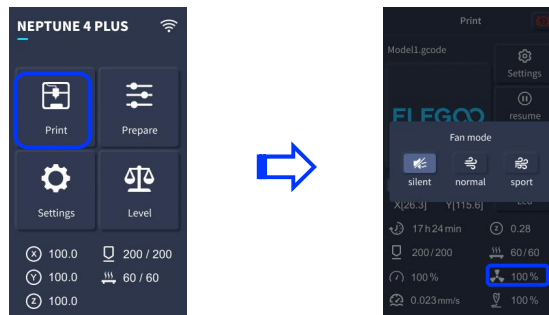


Display Screen Operation Introduction

Operation Of The Rear Cooling Fan:

From the Home Screen, select the Print option. Next select the Fan Icon in order to adjust the cooling fan operational settings during the printing process.

NOTE: The Rear Cooling Fan has three operational modes: Silent(60%), Normal(80%) & Sport(100%). Please select a mode appropriate to your printing needs as shown in photos below.

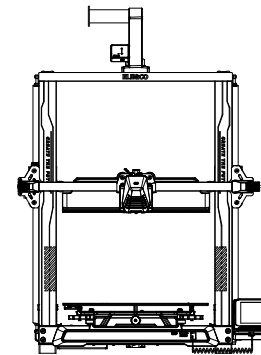
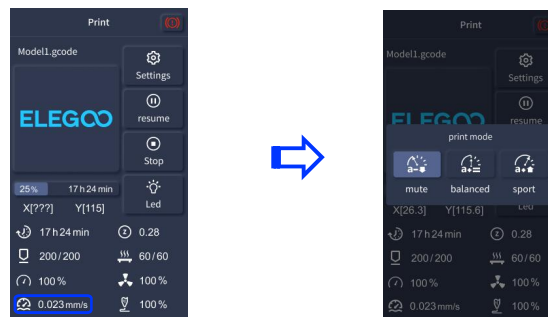


静音打印时关闭辅助散热模块

Print Mode Introduction:

During the printing process, users can adjust the printing mode by clicking the speed icon.

The three modes correspond to three different speed values, acceleration values, drive mute thresholds, and percentages of fan speed settings during printing.



Display Screen Operation Introduction

Vibration Pattern Optimization Introduction:




It is recommended to perform vibration pattern detection after first use or after the machine is moved or parts are replaced. Users can select the vibration pattern optimization option in the advanced settings.


Vibration mode optimization is performed on the X-Axis and Y-Axis respectively. Please do not shake the machine during the testing process and wait patiently for the testing to complete.

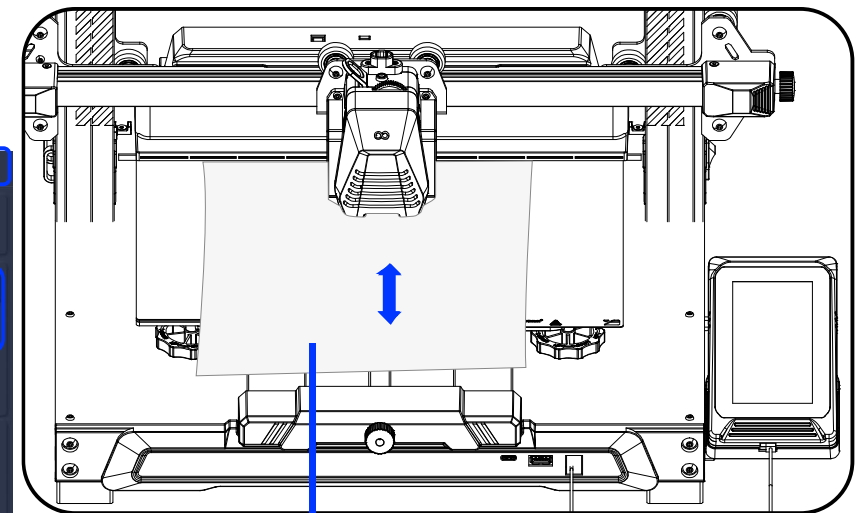
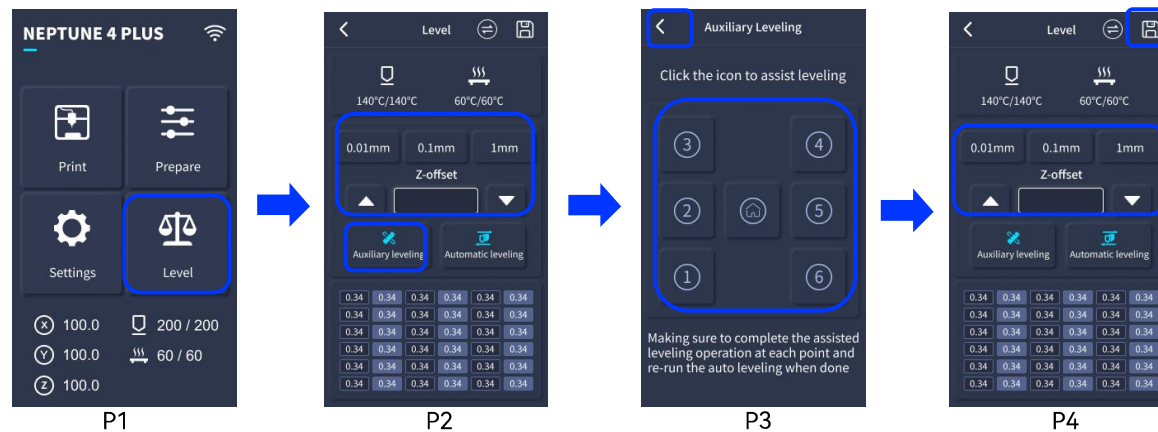


Auto-Leveling Procedure

When first running the machine, the distance between the platform and the nozzle needs to be calibrated in the leveling mode, which is about the thickness of a piece of A4 paper.

- When the printer is powered on, select [Level].
- Each axis of the printer automatically returns to the home position, after entering the leveling page, place a sheet of A4 paper between the nozzle and the platform, and adjust the height compensation values using the screen controls to increase or decrease the distance between the nozzle and the platform (P2), and slide the sheet of paper back and forth several times, until there is a slight amount of noticeable friction generated. At this point, the center point calibration will be completed. Next, select the auxiliary leveling option [], to calibrate the 6 corner points of the platform with the same sheet of paper by adjusting the hand-twisting nuts found under the heated bed, and once again sliding the paper until friction has been detected and the paper can be pulled out, but not slid under the nozzle. This will complete the auxiliary leveling calibration.
- After completing the manual auxiliary leveling process above, next select the automatic leveling option from the menu and your printer will begin the automatic calibration process. []
- Your printer will enter a heating state during the automatic calibration process as the nozzle is heated to 140°C and the heated bed to 60°C (Please adjust the heated bed temperature to the recommended temperature of the filament you intend to use to ensure accurate leveling values).
- After reaching the preset temperature, begin the 36-point automatic bed calibration.
- When completed, perform Z-axis compensation setting: Place an A4 paper between the print head and the platform. Adjust the compensation value by clicking, and gently slide the A4 paper.
- When the A4 paper can be pulled out but cannot be pushed in, the leveling is complete. Click the save icon to save. []

Note that the leveling sensor only detects the metal platform plate, for example, replacing the glass platform for leveling will not produce detection effect, which will cause the nozzle to squeeze the platform. 



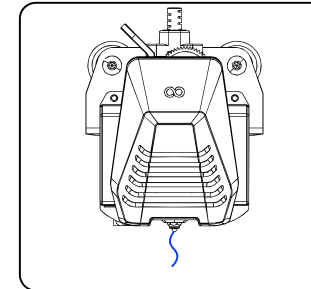
A4 paper

Model (Operation) Testing

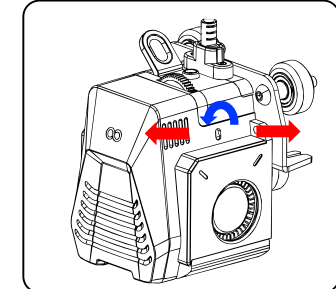
Printhead Feeding Verification

1. First, insert the filament through the filament detection sensor and to the bottom of the Printhead assembly.
2. Choose [Prepare] > [Extruder] > [Load] (the temperature of the nozzle will be automatically heated to 200°C.
3. After the nozzle reaches 200°C, choose the feed option to extrude filament material from the nozzle.
4. Clean melted filament off the nozzle and heated bed before printing.

NOTE: Filament with different hardness have different requirements for “spring” strength. The spring strength of the extruder can be adjusted with an Allen Wrench(within 2.0mm). When turning counter-clockwise, spring strength is increased, while spring strength is decreased when turned in a clockwise direction



Normal Extrusion State



Rotating the button counter-clockwise:

The extrusion force increases, which means that the filament is pushed out of the nozzle with more force.

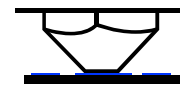
Rotating the button clockwise:

The extrusion force decreases, resulting in a reduction of the force with which the filament is pushed out of the nozzle.

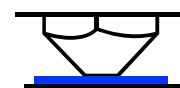
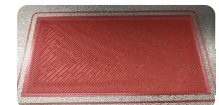
Printing Functional Test:

1. Insert the USB Drive into the printer's USB port.
2. Choose [Print] from the main menu and select the desired file.
3. When the nozzle and heated bed reach the required temperatures, the X, Y & Z axis will return to Zero (Home) and begin printing.

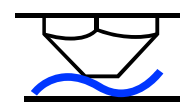
NOTE: When printing the test model, please observe the first layer printing and compare against the figure on the right. In cases A and C, the compensation settings are not properly adjusted. You can make compensation adjustments during printing to adjust the distance between the nozzle and the heated bed platform. In case B, the nozzle and the platform are at the ideal printing distance and can continue printing without any further adjustments.



The nozzle is too close to the platform, and resulting in under extrusion.



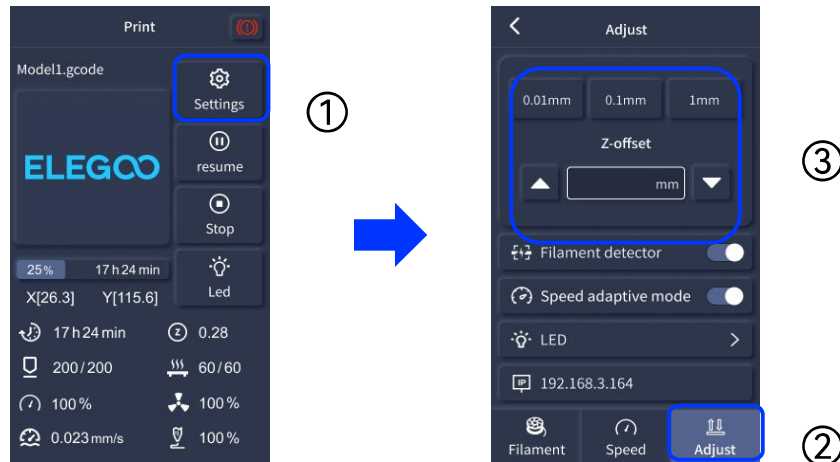
The extrusion volume & distance between the nozzle and the heated bed platform is proper with uniform adhesion



The nozzle is too far from the platform and the resulting adhesion is insufficient. The model may fall off the heated bed platform during printing.



Adjustment of nozzle height while printing



NOTE: While printing and following this procedure for fine-tuning the nozzle height, please ensure that you switch the moving distance to the smaller increment settings of 0.01mm or 0.1mm to prevent the nozzle from potentially dragging excessively along the heated bed platform (which can cause damage to the build plate) or to keep filament from “hanging” in the air.

Resume Printing Function

Power Loss Recovery:

1. Your printer, has features to continue printing following a sudden interruption or loss of power (an outage) or any accidental events (aka “switching-off” power), and this function does not need to be set manually.
2. Once power has been resumed to the printer, simply press the “Resume” option to continue printing.

NOTE: The PEI metal build plate has better overall adhesion when it is fully heated. If the power has been “Off” for too long, the model may become easily dislodged or fall off the PEI plate very easily. In such event, the Resume Printing Function will not be able to continue.

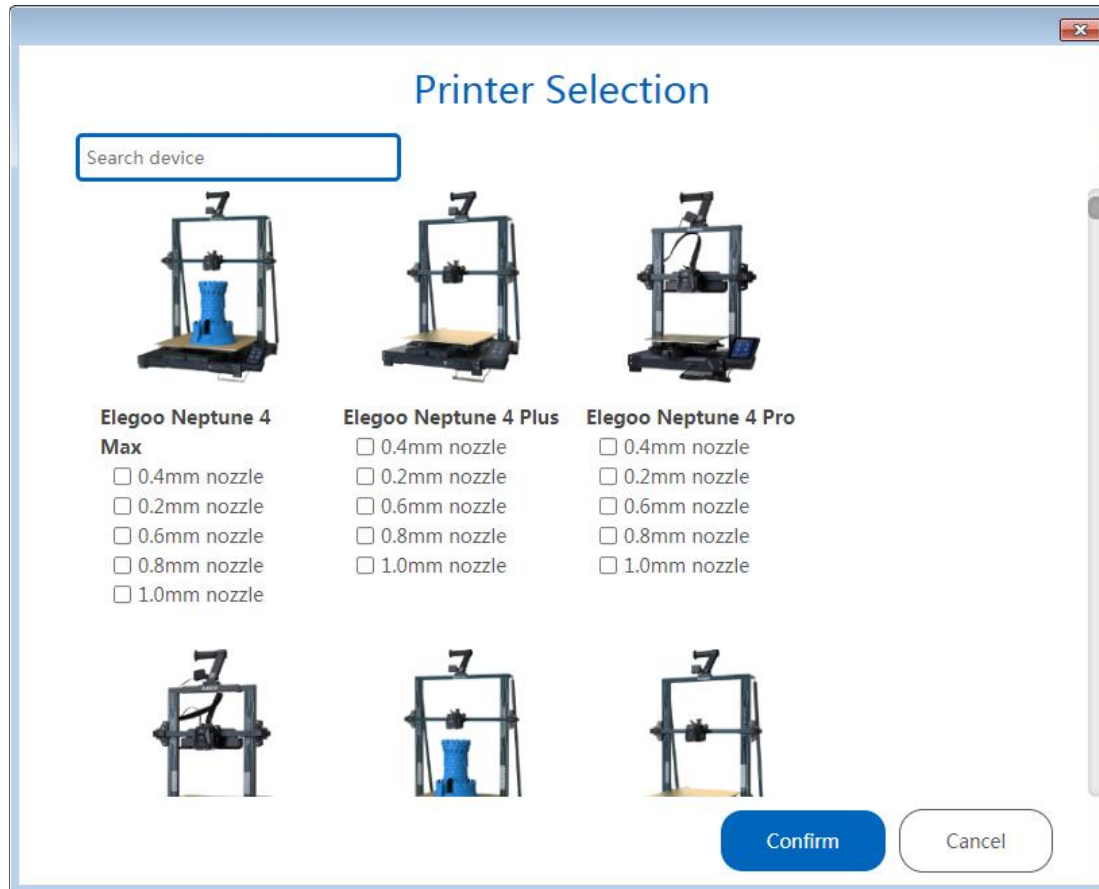
Filaments Detection:

When the sensor detects that filament is not present, this function will inform you to replace the filament before continuing an active print, in order to prevent a print failure due to insufficient filament material.

Software Installation

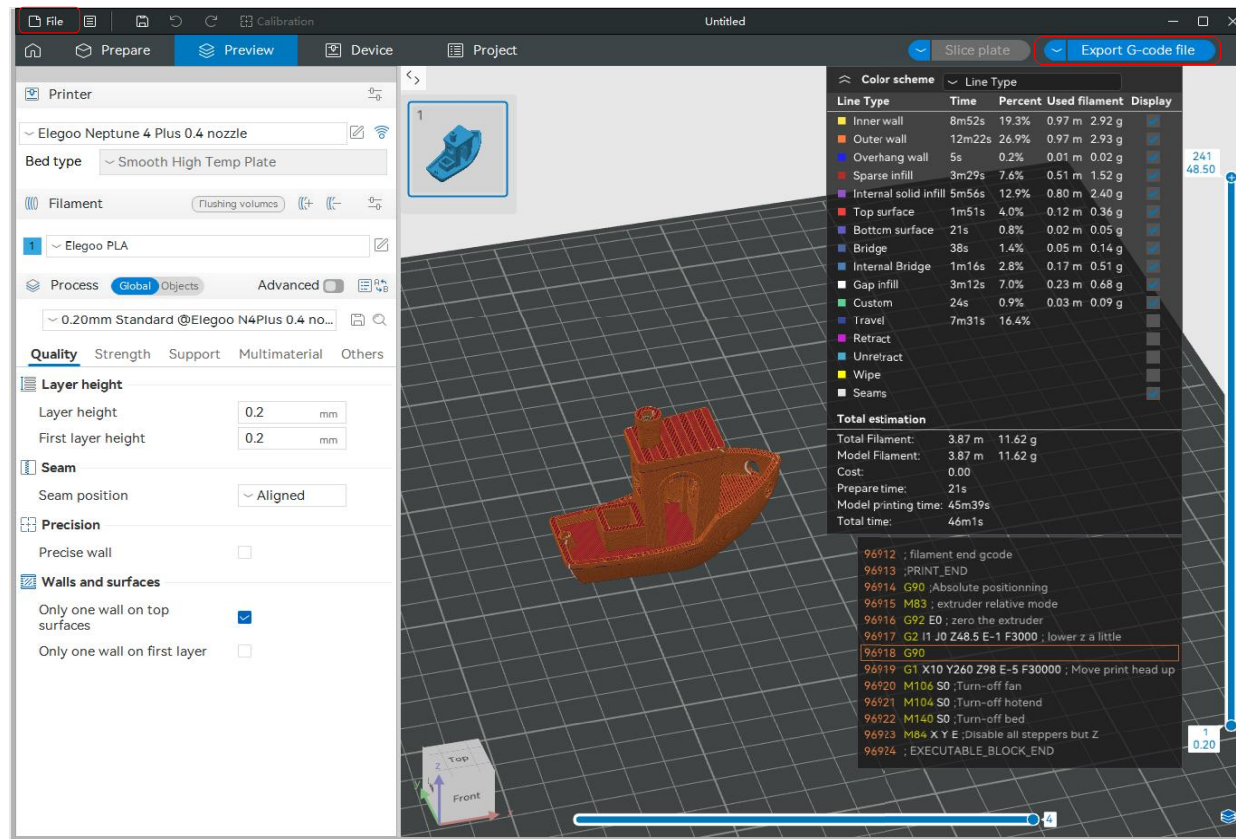
The included USB drive contains slicing software for installation and use.

* Select your printer model before starting the slicing process.



Software Installation

1. Importing model for slicing: You can simply drag and drop the model file into the slicing software or click "File" in the top left corner and select "Import."
2. Exporting G-code file: You can use the web interface to send the generated G-code file directly to the printer for online printing or save it to a USB drive for offline printing.



LAN(Network) Printing

After your Printer is plugged into your network (via a network cable in the LAN Port), power on your printer and check the assigned IP address through the on-screen information. It is recommended that you use Google Chrome on your local computer to access this IP address over your local network.

NOTE: Your Printer and Your Local Computer can only be connected to the LAN (Network) over the same network segment. You should ensure that the network wiring port on the Printer is connected, otherwise the access will fail.



- **NOTE:** Using Google Chrome (on your local computer), you can enter the IP Address listed on your Printer's Display to access the Printer directly (eg. <http://192.168.211.164>). Following entry of this address, press the "Enter" key to access the Printer's Network page.

LAN(Network) Printing

- NOTE: Upon the successful access of the Printer's Network Interface, you will be presented with the following screen.

The screenshot shows the PrusaSlicer software interface. Red boxes highlight the following sections:

- Movement Control:** Located in the top-left, it includes a toolbar with icons for home, move, and other navigation functions, along with a 'MOTION OFF' indicator.
- Fans and Output:** Located in the middle-left, it contains controls for 'Part Fan' (set to 0% Coollight) and 'Fan 1' (set to OFF).
- Printer Limit:** Located in the bottom-left, it features sliders for 'Velocity' (set to 500 mm/s) and 'Acceleration' (set to 8000 mm/s²).
- Temperature Display:** Located in the top-right, it shows a graph of temperature over time for the 'Extruder' and 'Heater Bed', with current temperatures of 29.2°C and 35.0°C respectively.
- Console Display:** Located in the middle-right, it displays a list of G-code commands being executed, such as 'G1 X100 Y100 Z10 F1000'.
- Task List:** Located in the bottom-right, it shows a list of tasks, including 'Last printed' and 'Heated C'.

Movement Control: Provides the ability to control the movement of the printer's printhead along each axis of control, and can set compensation following the leveling process.

Fan and Output: Provides the ability to control the printhead fan and to turn lighting (on/off).

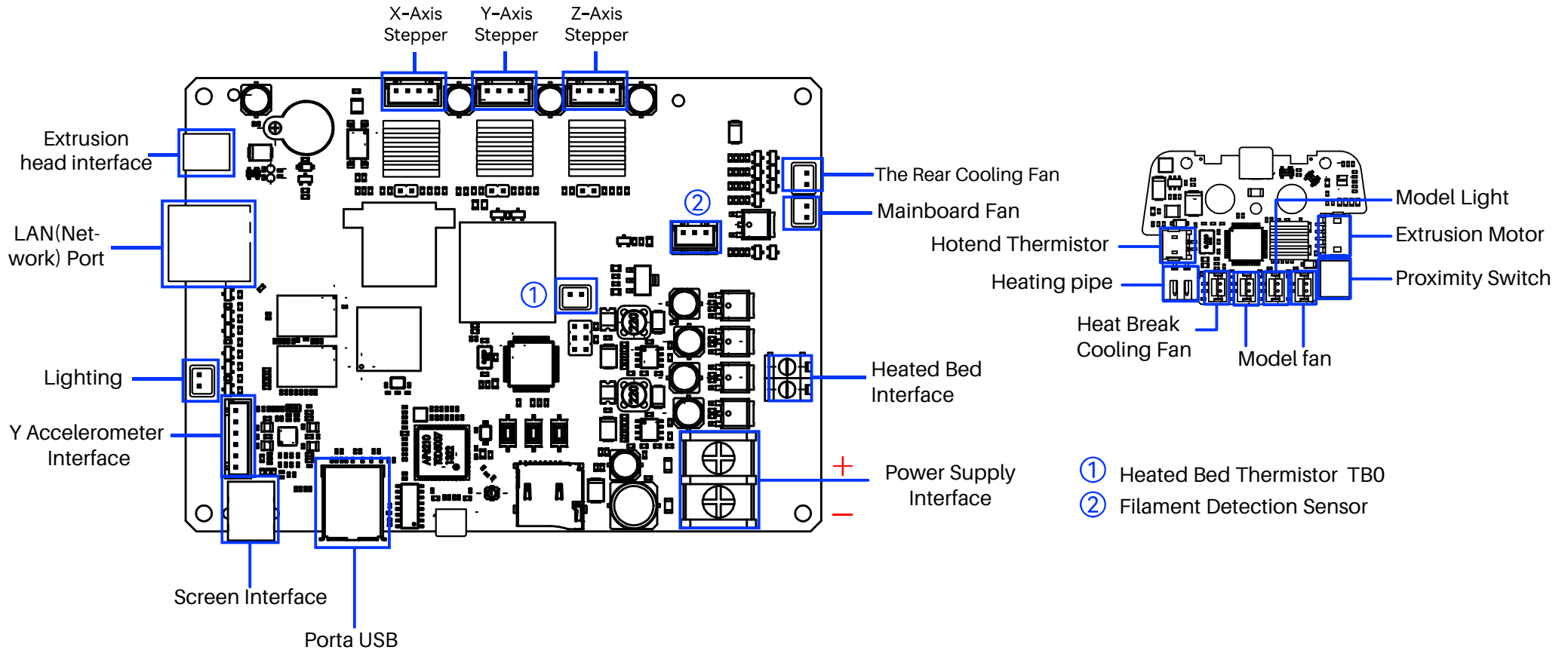
Printer Limit: Sets the maximum acceleration control of the printer, normally there's no need to modify.

Temperature Display: Displays the Printer's temperature(s) and heating status. This also provides controls for the preheating of the printhead temperature as well as the heated bed temperature.

Console Display: Shows G-code commands executed and allows for manual G-code to be sent to the printer.

Task List: You can drag the G-code file of the ELEGOO Slicer to the task list here for Printing.

Mainboard Circuit Wiring Diagram



Warranty Statement

- ELEGOO printers are covered by a warranty from the date of receipt. Warranty periods for different components may vary. For more details, please visit our website (<https://www.elegoo.com/pages/refund-policy>).
- The free warranty does NOT include problems caused by self-disassembly and improper use, and wear and tear of the machine housing, etc.

After-sales service registration card

Date of purchase:

Place of purchase:

Printer:

S/N:

Fault description:

Contact:

Phone number:

Address:



ELEGOO official website: www.elegoo.com

FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.