



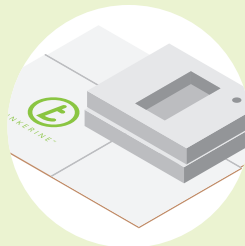
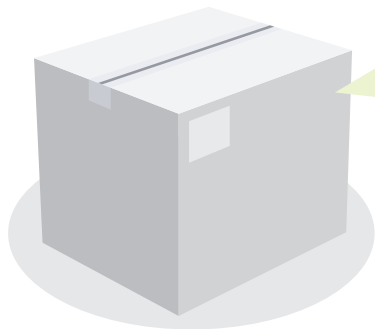
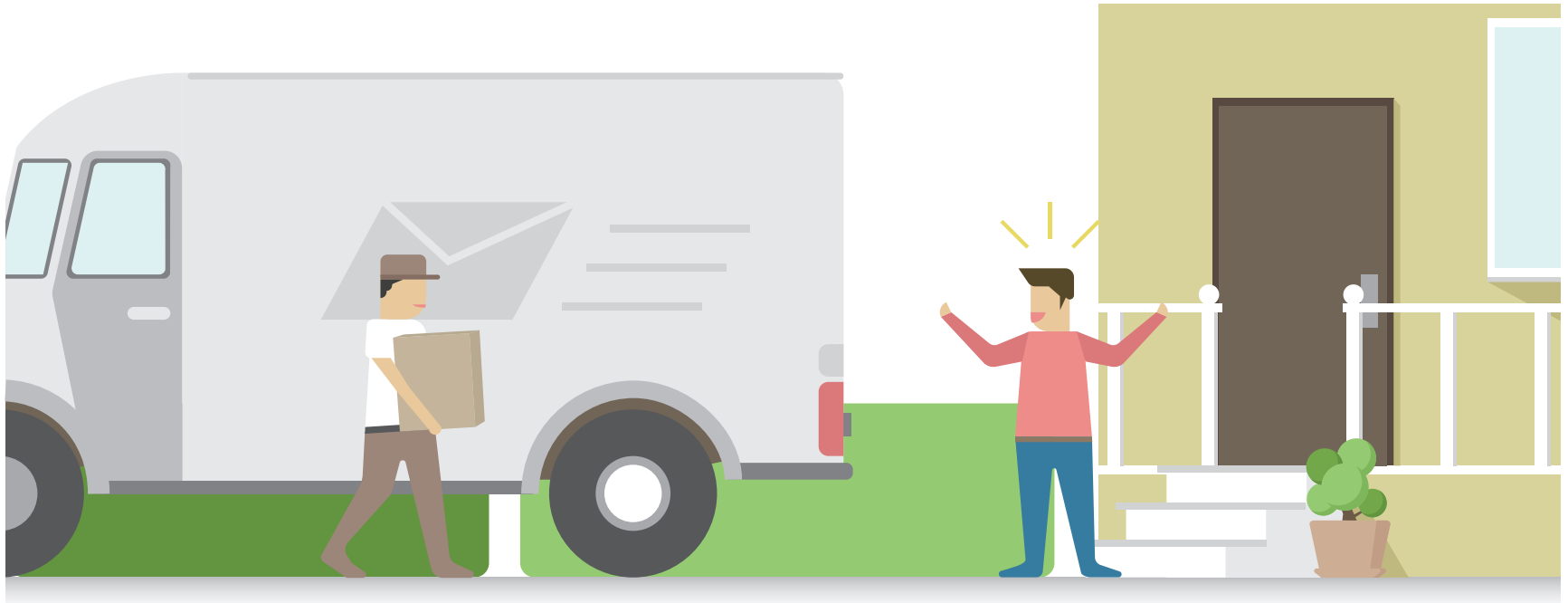
DITO™ PRO

Setup & Operations Manual



Welcome

Congratulations on receiving your Ditto™Pro 3D Printer! This guide is designed to walk you through the unboxing and setup process so you can start printing your 3D creations.



Got space? Save the shipping box and foam brackets for printer storage and shipping.

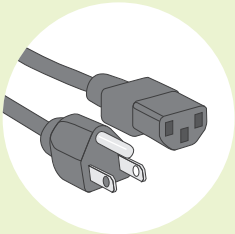
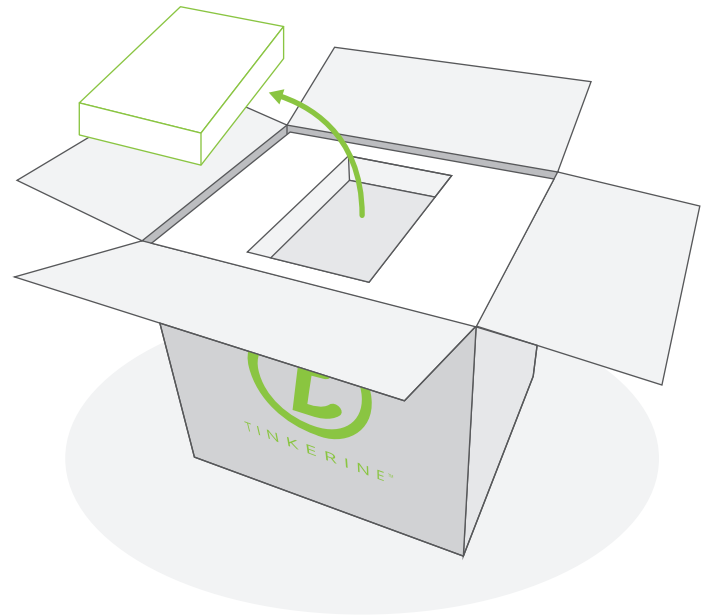


The DittoPro 3D Printer can be too heavy to lift out of the box by yourself. Ask for help to prevent injury or damage to the printer.

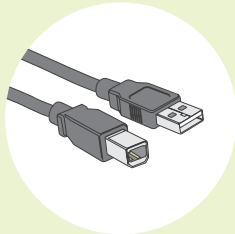
Step 1

Removing the Accessory Box

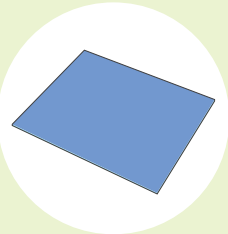
The accessory box is slotted into the top foam compartment of the printer's packaging. Remove the accessory box and check to see that you have all of the following accessories.



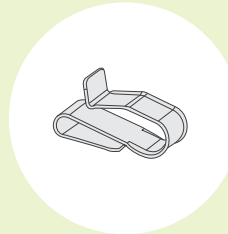
Power Cable



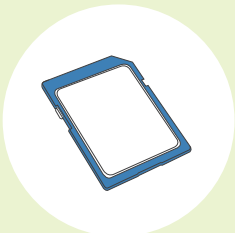
USB Cable



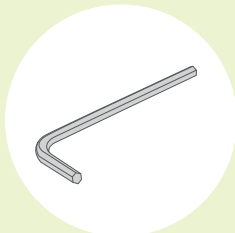
Glass Print Surface



Print Surface Clips x4



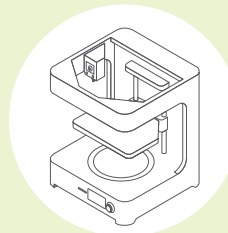
SD Card



Hex Wrench



Inspection Certificate



Test Print



Product Warranty Registration

Visit the online printer registration page and follow the instructions to activate your product warranty.

warranty-registration.tinkerine.com



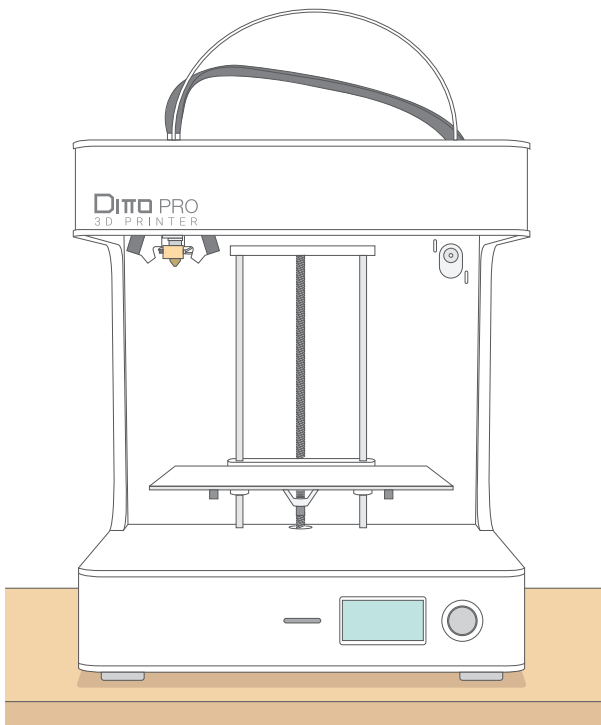
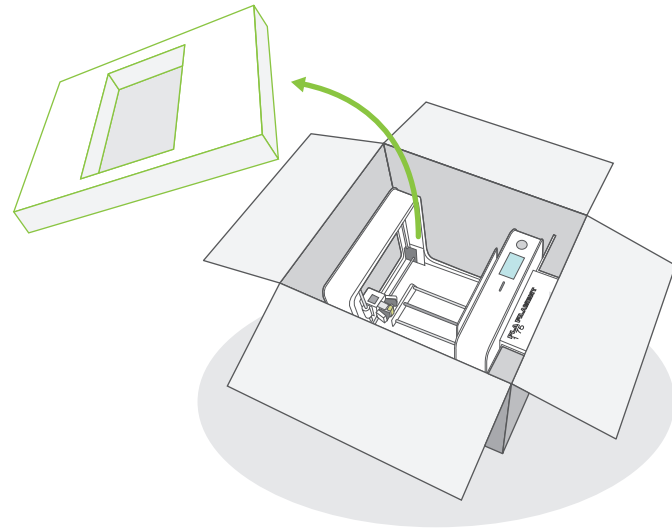
Locating the Product Serial Number

You can find your product serial number located on the bottom panel in the back of the printer. Your printer's serial number is required for warranty registration.

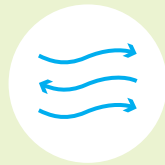
Step 2

Removing the Shipping Bracket and Filament

Remove the top foam shipping bracket and take out the 3D printing filament located on the side of the box. Remove the DittoPro 3D Printer and place it upright on a firm flat surface.



! For long term storage, cover your printer to prevent dust from accumulating on motion components.



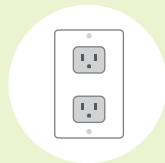
Airflow

Allow passive airflow around the DittoPro 3D Printer. Avoid obstructing the cooling fan intake located on the bottom of the DittoPro 3D Printer.



Stability

Place the DittoPro 3D Printer on a flat and firm surface. Excessive vibrations or shaking will affect print quality.



Power

Ensure the printer is placed near an accessible power outlet. Avoid plugging the printer into an overloaded power bar as electrical shorts may cause the printer to reboot during printing.



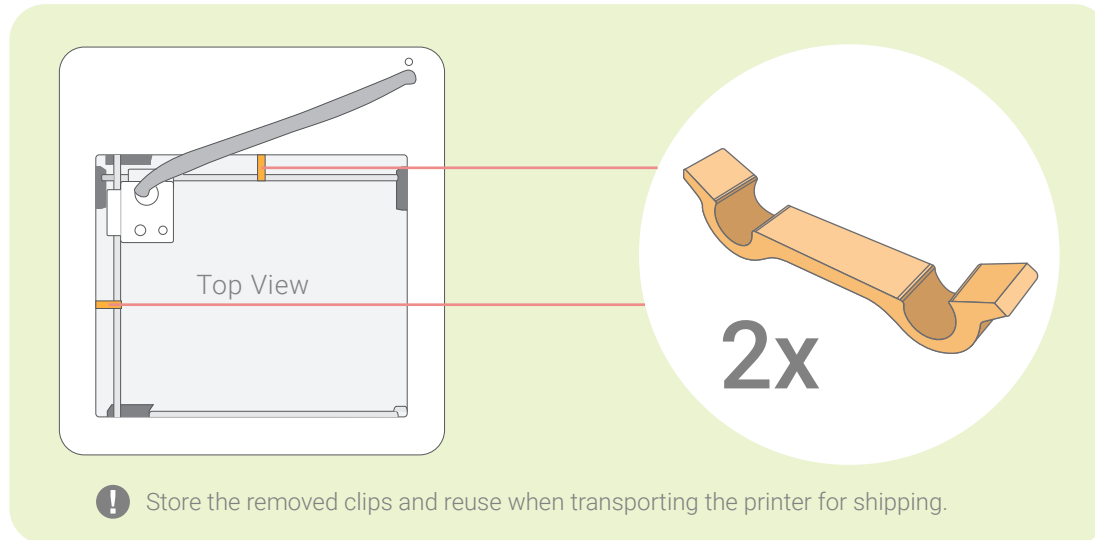
High Temperature

The printer's nozzle can reach upwards of 200°C during operation. Children and pets should be kept clear of moving parts during the printing process.

Step 3

Removing the Gantry Clips

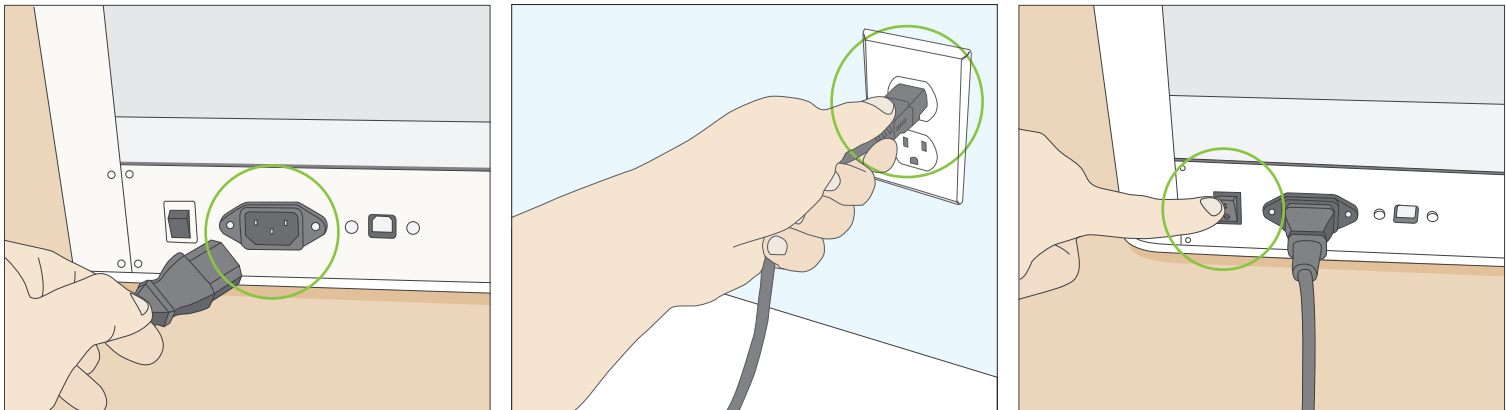
Located near the top of the DittoPro 3D Printer are two plastic gantry clips that prevent the extruder from moving freely during shipping. You can remove the two gantry clips securing the extruder by pushing down the tabs on each end of the clips.



Step 4

Turning on the Printer

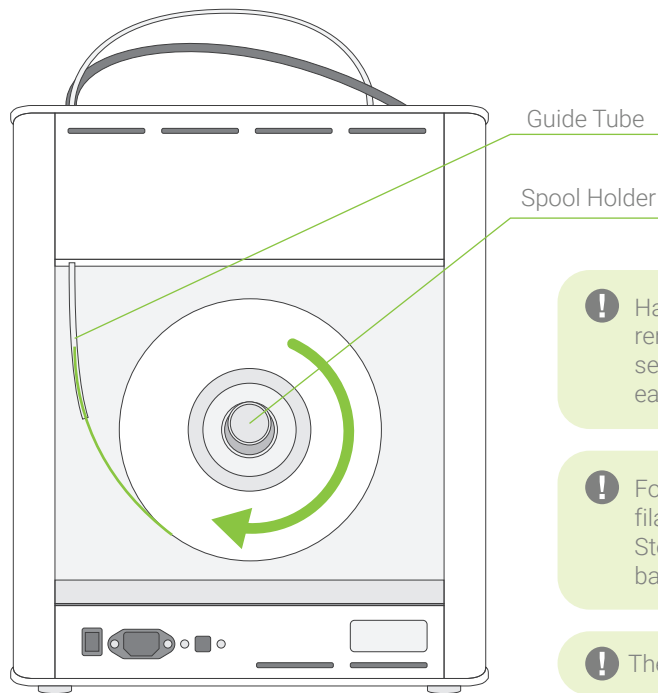
Insert the female end of the power cord into the socket located on the back panel of the printer and the male end into the power socket. Turn on the printer by flipping the power switch to the On position (I).



Step 5

Loading the Filament

Remove the spool of filament from the packaging and place it on the spool holder. Take the end of the filament from the spool and insert it into the guide tube. Make sure the filament spool spins clockwise as the filament feeds into the guide tube.



! Have a firm grip on the loose end of the filament when installing or removing the spool from the printer. Letting go of the loose end before it is secured may cause it to coil back and become tangled. These tangles are not easily spotted, and may cause problems during printing.

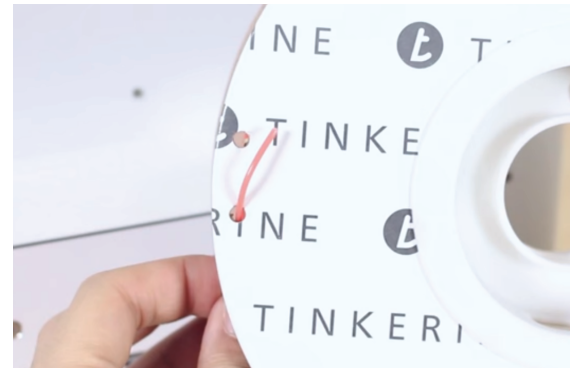
! For long term storage, retract and remove the filament from the printer. PLA filament can become brittle over time as it is exposed to UV and moisture. Store opened spools of filament inside the original packaging or in a sealed bag with a desiccant packet.

! The use of third-party filament will void the warranty on your DittoPro 3D Printer.



Loading

When installing filament, thread the loose end through the filament guide tube.



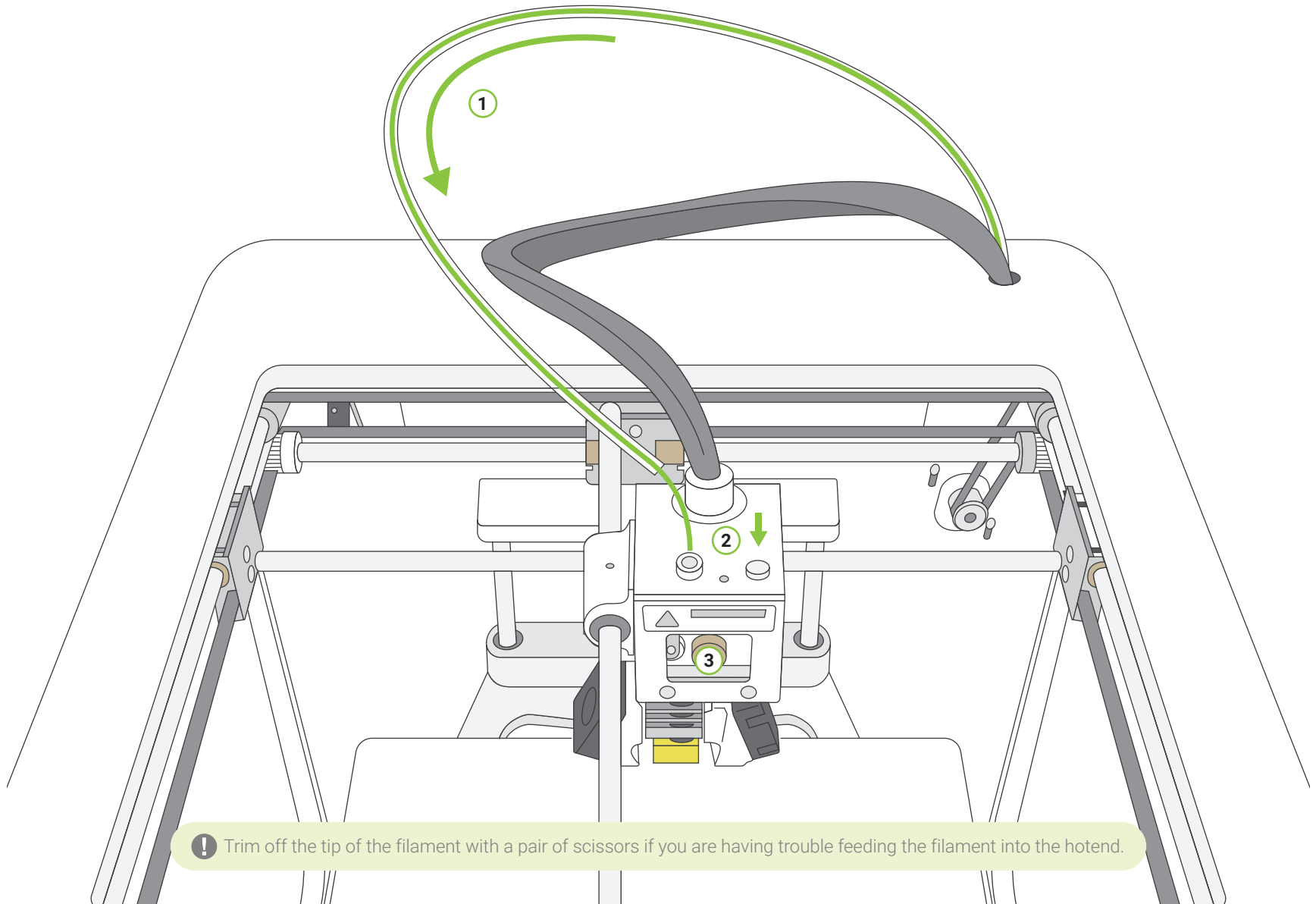
Removing

When removing filament, thread the loose end through the storage holes on the spool.

Step 6

Loading the Filament (Cont.)

Thread the filament through the guide tube (1). Push the tensioner button (2) down to make it easier to thread the filament through the drive gear and into the hotend (3). Once the filament is inserted all the way down into the hotend, insert the guide tube into the top of the extruder cap.

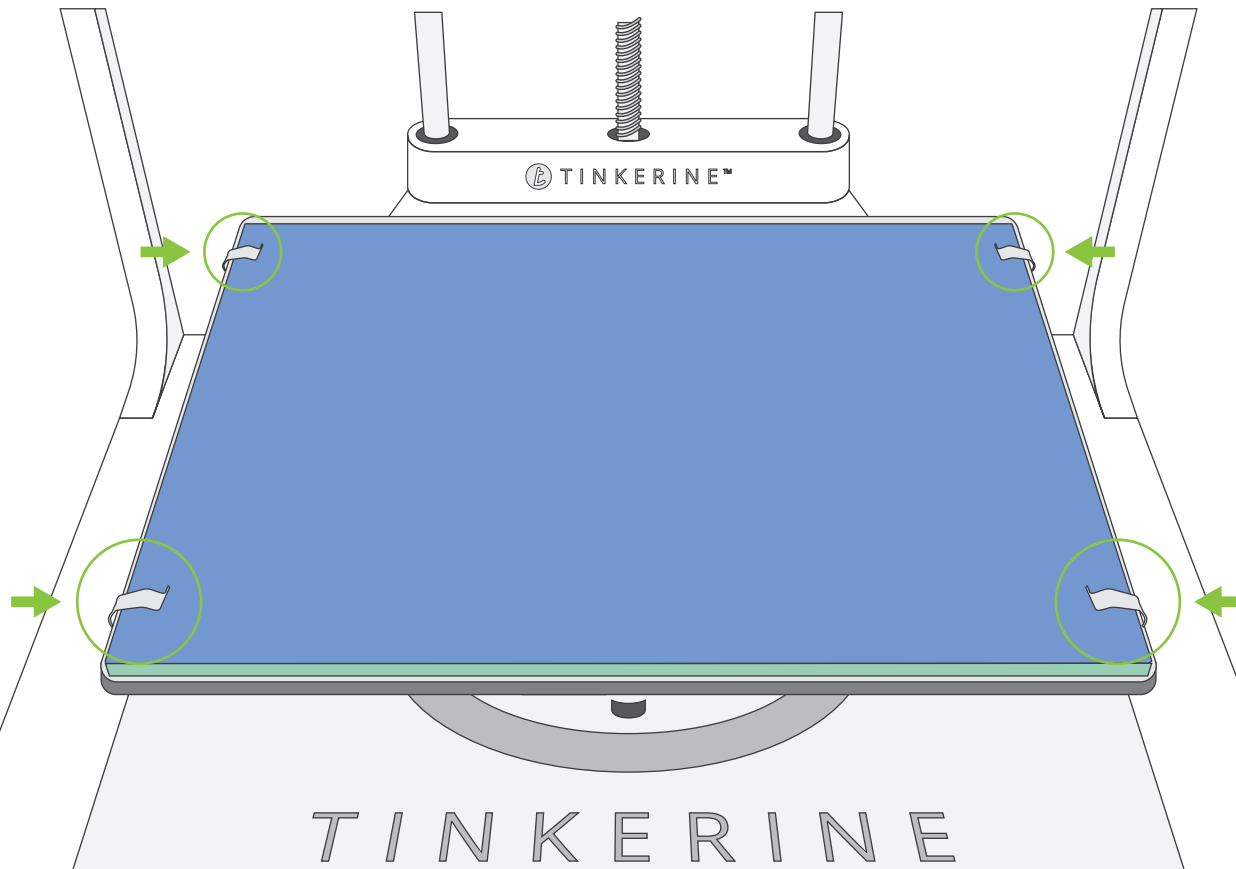


! Trim off the tip of the filament with a pair of scissors if you are having trouble feeding the filament into the hotend.

Step 7

Installing the Glass Print Surface

Place the glass print surface onto the bed with the blue painter's tape side facing upward. The taped surface will act as an adhesion material for the PLA plastic. To secure the print surface, attach the four print surface clips as shown below.



! Replace any worn or damaged blue painter's tape as needed to ensure that your prints stick properly during the printing process.

! When replacing worn print surface tape, avoid overlapping strips of tape. The overlaps create an uneven print surface, which can result in poor print adhesion.



Step 8

Print Surface Calibration

You'll need to perform a print surface calibration for you printer to ensure the print surface is perfectly levelled in relation to the print nozzle. Doing so allows the molten plastic to be laid down evenly and properly adheres onto the print surface during printing. It is recommended that you perform the calibration process everytime the printer has been transported to a new location.



This is the **Main Menu**. From here, you can access the printer's many functions.



To access the surface calibration wizard, turn the LCD dial until **Wizard** is highlighted and Push the dial to make the selection.



Within **Wizard**, select **Bed Level** to begin the surface calibration process. Follow the on-screen instructions to level the print surface.

Not sure if the bed calibration was done correctly?
Watch our online bed-leveling tutorial video by
scanning in the QR code on your phone or visiting
this link: <https://youtu.be/GpMtpL-FfDM>



Step 9

Starting a Print

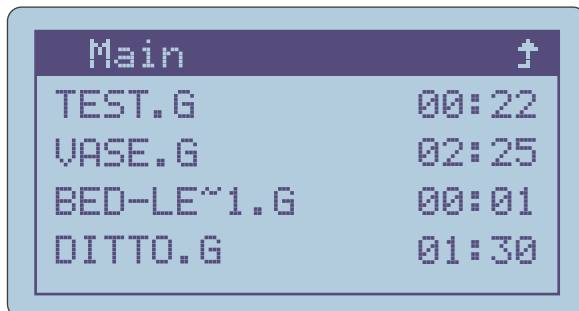
Follow the instructions below to begin your 3D print! Before you proceed, make sure you've installed the filament and performed the print surface calibration.



If you haven't inserted the SD card into the SD card slot beside the LCD screen, the **Print** icon will display **No Card**.



Once the SD card is inserted, the icon will now display **Print**. Push down on the LCD dial to enter the print selection menu.

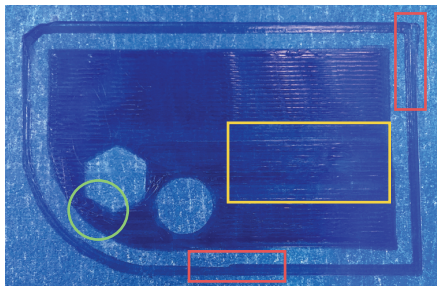
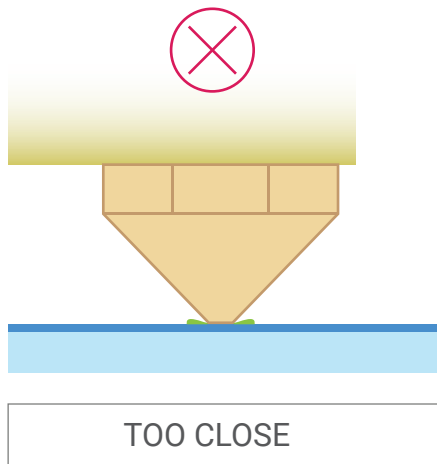


In the print selection menu, all printable (.G format) files will be displayed along with their estimated print time. Use the LCD dial to navigate and select the file you would like to print. You can return to the previous screen at any time by selecting **Main** located on the top of the list.

Important!

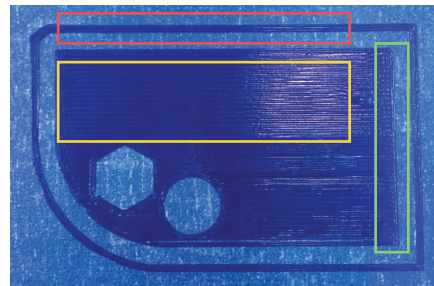
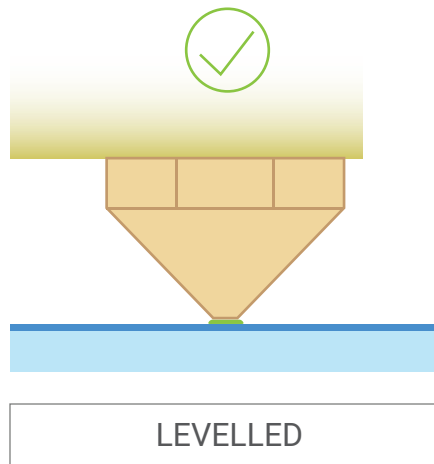
Ensuring Proper Print Adhesion

Whenever you begin a print, always check that the first layer of the print is properly stuck onto the blue painter's tape. A properly levelled print surface should have the extruded filament a bit squished. While the printer is printing the skirt (outer perimeter), observe the deposited filament and make micro-adjustments with the thumbscrew if necessary.



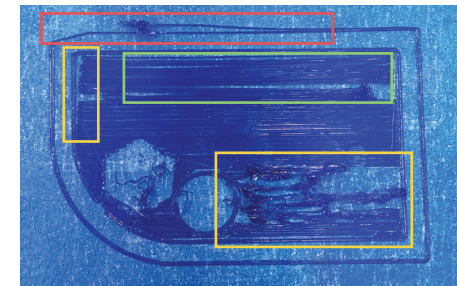
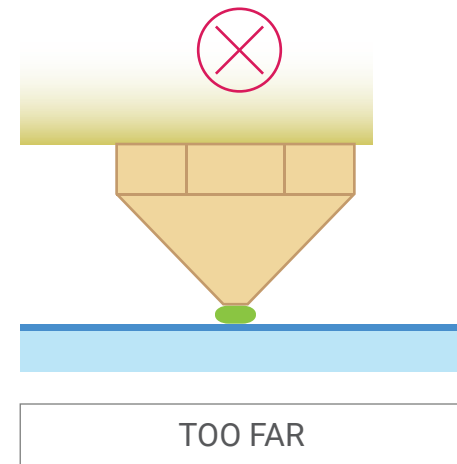
Signs of nozzle too close to print surface:

- (A) Inconsistent width along extrusion.
- (B) Portion of the layer appear thin or non-existent.
- (C) Squashed filament causes areas to overfill.



Signs of nozzle levelled to print surface:

- (A) Consistent width along extrusion.
- (B) Thickness appears consistent across entire layer.
- (C) Infill is even and joins up neatly with the perimeter.



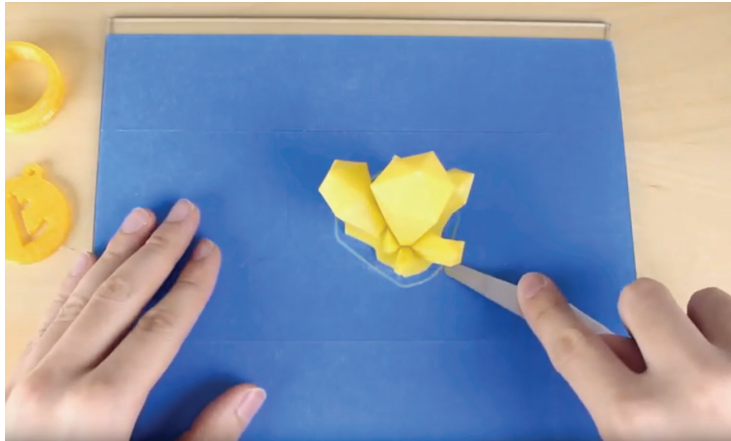
Signs of nozzle too far to print surface:

- (A) Filament appear stringy and doesn't adhere to print surface.
- (B) Infill doesn't meet up with perimeter.
- (C) Infill line doesn't stick to other infill lines.

Final Step

Print Removal

When your print is completed, it's time to remove it from the print surface. While smaller prints can sometimes be easily removed by hand, we recommend you to use a Print Removal Knife for removing prints.



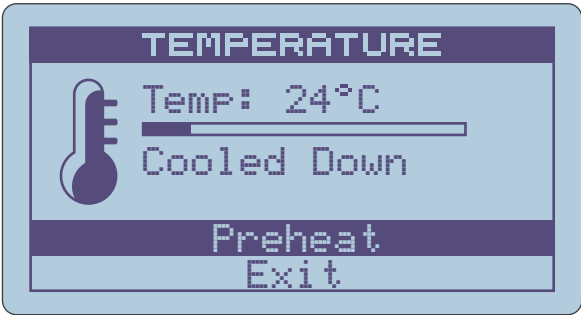
After your print has completed, remove the glass print bed from the printer and place down on a flat surface.



Using the Print Removal Knife, slowly wedge the knife between the print and taped surface and lift upward. Repeat the process around the print until you can easily pop the print off the print surface.

Additional LCD Menu Settings

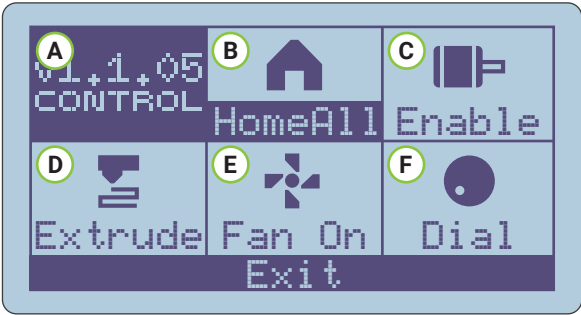
Besides using the **Print** and **Wizard** option from the main menu, the **Temp**, **Control**, and **Status** menu offer several features that are essential to the operation of the printer.



Temp

In the **Temp** menu, select Preheat to heat the hotend to printing temperature. The hotend will remain heated until Cooldown is selected from the same menu or until the printer is switched off.

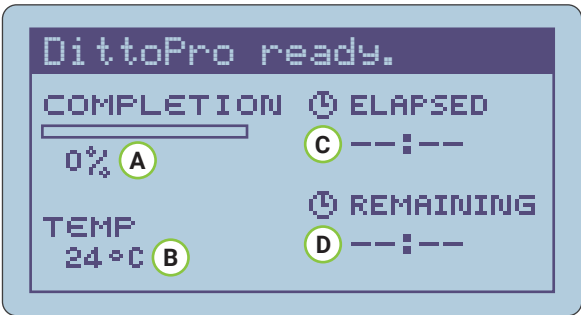
- Uses for the Preheat function:
- 1. Preheating the hotend prior to printing to reduce wait time.
 - 2. Heat up the hotend for filament removal or manual extrusion.



Control

The **Control** menu contains different printer functions.

- (A) Printer's firmware version.
- (B) Moves the extruder to the home position.
- (C) Engages / disengages printer motors [For debugging].
- (D) Heats up the hotend and extrudes a small length of filament.
- (E) Turns on/off print surface cooling fans [For debugging].
- (F) Toggles LCD dial sensitivity.



Status

The **Status** screen is the default screen display during printing. When the printer is idle, this screen can be accessed by selecting **Status** from the home screen.

- (A) Progress bar and percentage of current print.
- (B) Current hotend temperature in degrees Celcius.
- (C) Elapsed time on current print.
- (D) Time remaining on current print (Estimation may vary).

Slicing Software

Tinkerine Suite

Tinkerine Suite is a 'slicing' software. With regards to 3D printing, this means that it will take a 3D models and slice it up into multiple layers that are essentially instructions for the 3D printer to operate. While most of this magic happens on the backend, the user interface will allow for adjustments like resolution, dimensions, and model traying.

 TINKERINE™ SUITE

3D PRINTING SIMPLIFIED.

Meet Tinkerine™ Suite, the most user-friendly 3D slicing software. With its clean, minimal interface and an array of powerful features, it's the perfect ally to your Ditto™ and Litto™ series 3D printers.

Download for Free (v2.0)

Windows XP or above



If Tinkerine Suite isn't already installed onto your computer, visit the software download page at www.tinkerine.com/tinkerine-suite. Tinkerine Suite is available on the Windows and macOS operating systems.

Printer Specifications

PHYSICALS

Dimensions	37 x 49 x 43.6 cm (14.6 x 15.4 x 17.2 in)
Weight	10 kg (22 lb)

PRINTING

Build Volume	21.5 x 16 x 22 cm (8.4 x 6.3 x 8.7 in)
Filament Ø	1.75mm
Layer Resolution	50-300 microns (0.05-0.3 mm)
Material	PLA Filament
Nozzle Ø	0.35mm
Technology	Fused Filament Fabrication (FFF)

SOFTWARE

File Type	STL, OBJ
OS Compatibility	Windows, Mac
Software	Tinkering Suite

MECHANICAL

Body	Aluminum Composite
Print Surface	Glass (Adhesive material required)
Linear Motion	Linear bearings, bronze bushings
Motor	1.8° step angle, 1/16 micro-stepping

ELECTRICAL

Connectivity	USB (Firmware update), SD Card (Printing)
Consumption	~15W (idle), ~70W (operational)
Electronics	RAMPS 1.4, AT mega 2560, A4988 stepper driver
Power Input	AC 110-220V, 50-60 Hz
Power Output	DC 12V, 15A

CERTIFICATION

cULus	Passed
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Questions?

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1-844-846-5377 (International)

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contact@tinkerine.com