



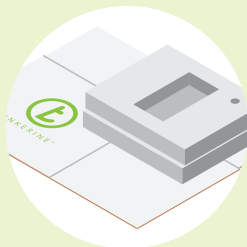
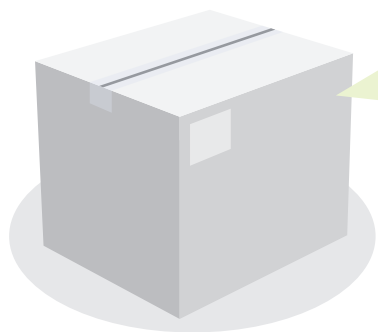
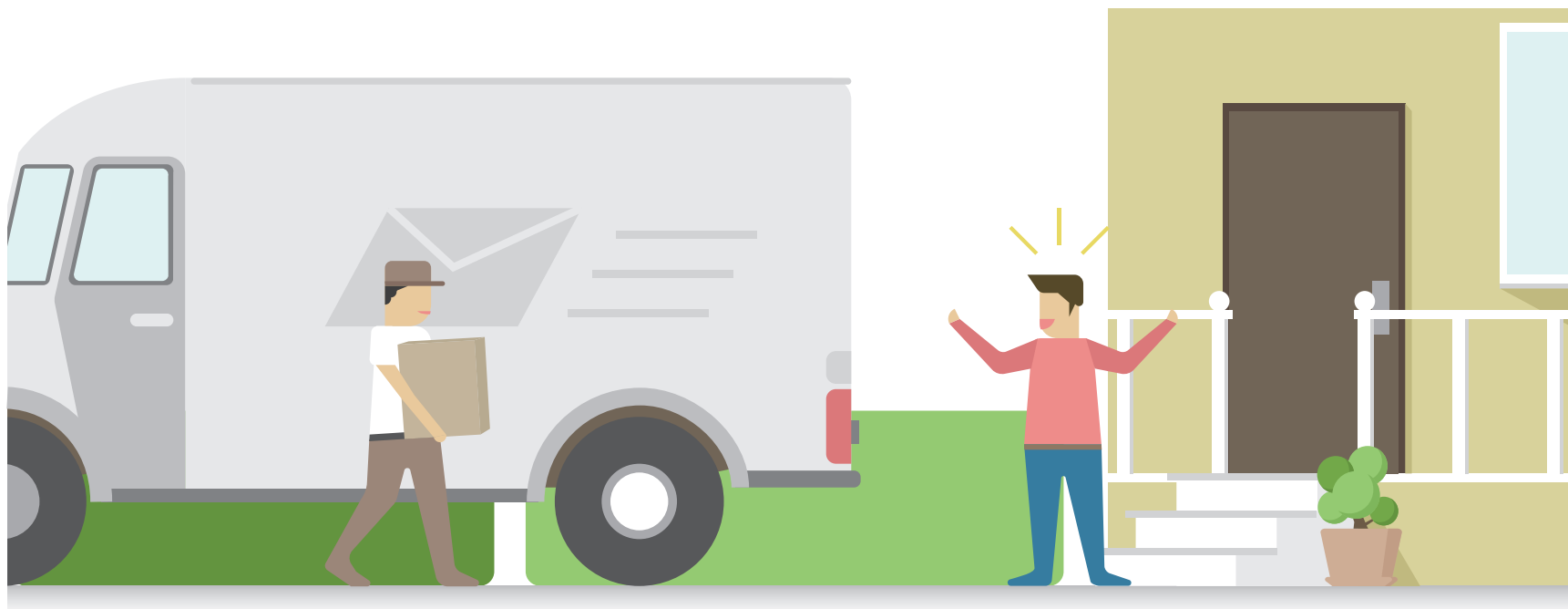
# DITO<sup>TM</sup> PRO<sup>R</sup>

## Setup & Operations Manual



# Welcome

Congratulations on receiving your DittoPro-R 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.

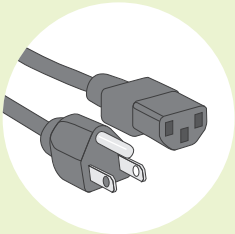
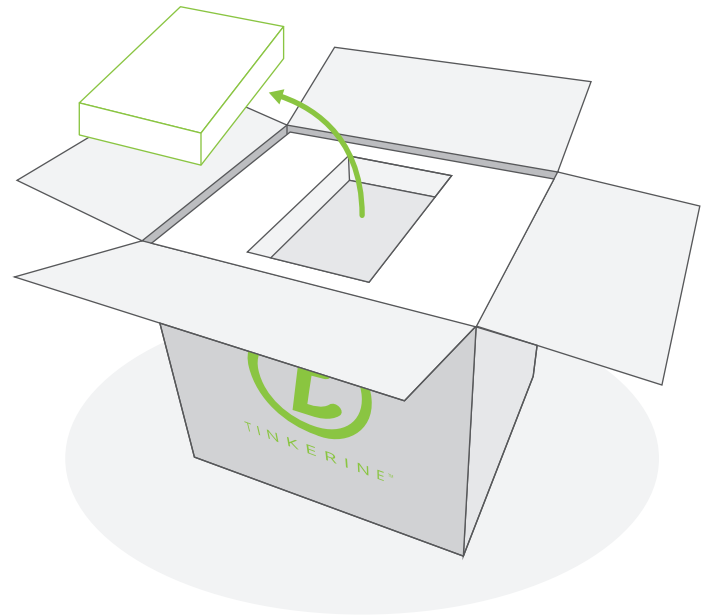


The DittoPro-R 3D Printer can be too heavy to lift out of the box by yourself. Ask for help to prevent injury or damage to the printer.

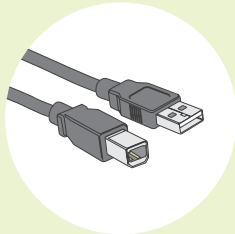
## Step 1

### Removing the Accessory Box

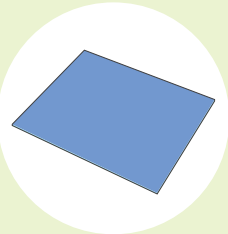
The accessory box is slotted into the top foam compartment of the printer's packaging. Remove the accessory box and check to see that you have all of the following accessories.



Power Cable



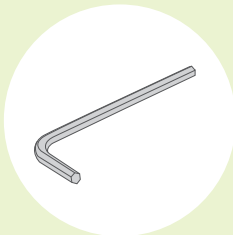
USB Cable



Glass Print Surface



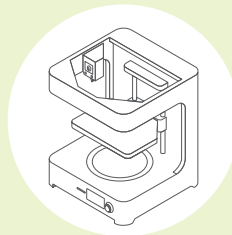
USB Flash Drive



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**



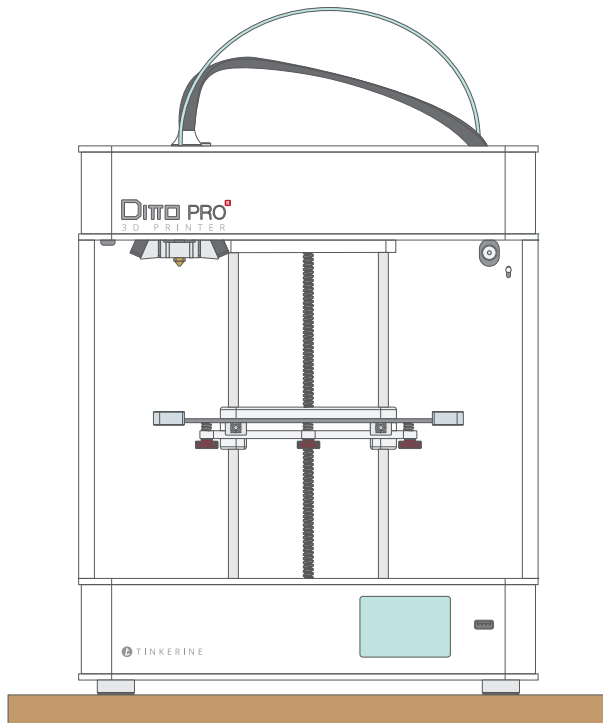
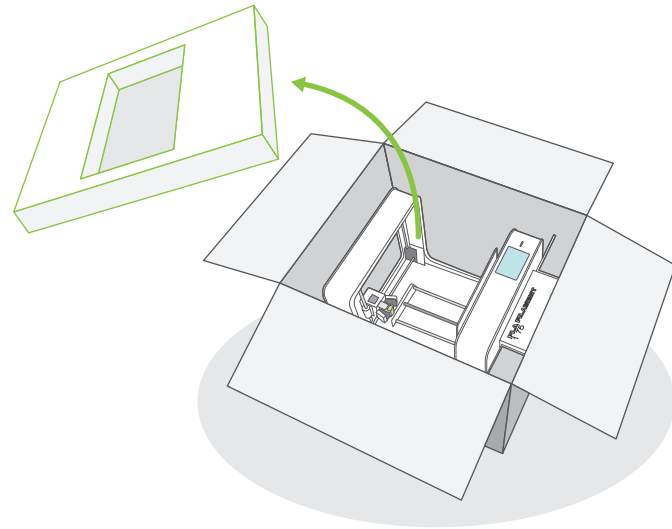
### Locating the Product Serial Number

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.

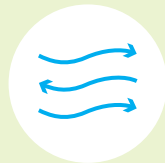
## Step 2

### Removing the Shipping Bracket and Filament

Remove the top foam shipping bracket and take out the 3D printing filament located at the side of the box. Remove the DittoPro-R 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.



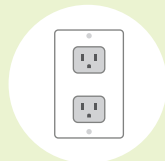
#### Airflow

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



#### Stability

Place the DittoPro-R 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

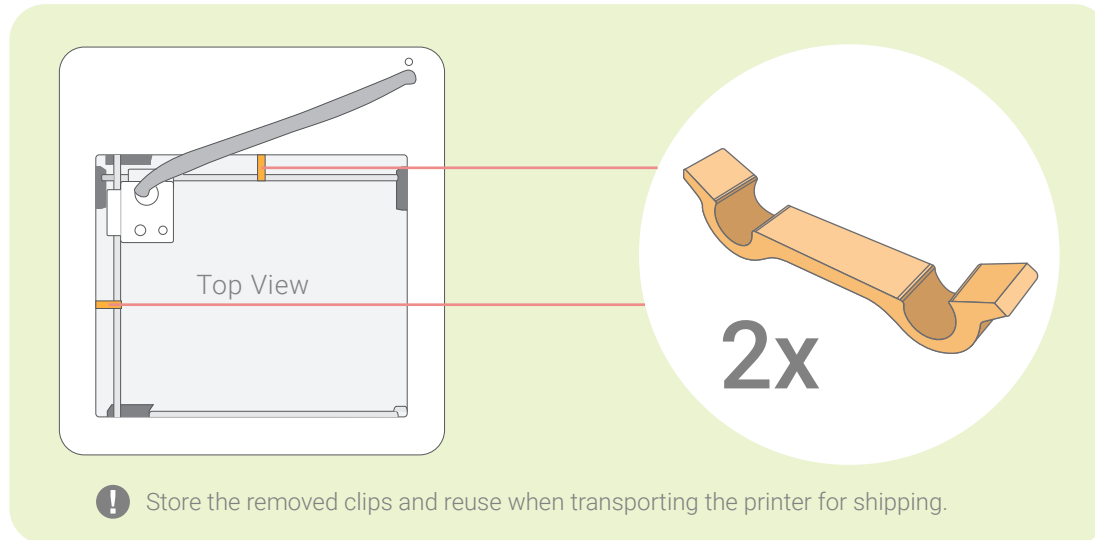
The printer's nozzle can reach upwards of 200°C during operation. Children and pets should be kept clear of moving parts during the printing process.



## Step 3

### Removing the Gantry Clips

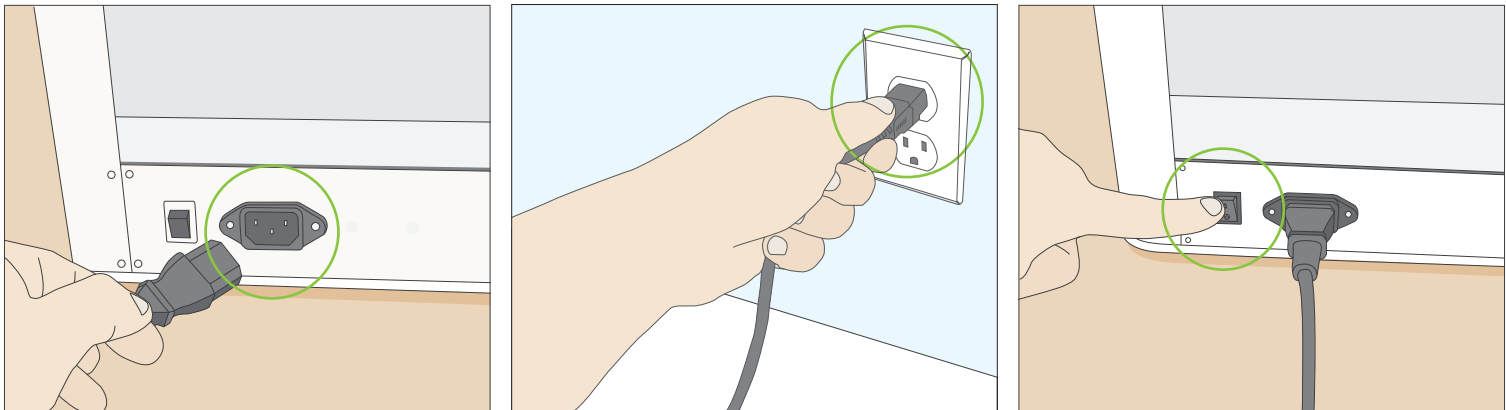
Located near the top of the DittoPro-R 3D Printer are two plastic gantry clips that prevent the extruder from moving freely during shipping. You can remove the two gantry clips securing the extruder by pushing down the tabs on each end of the clips.



## Step 4

### Turning on the Printer

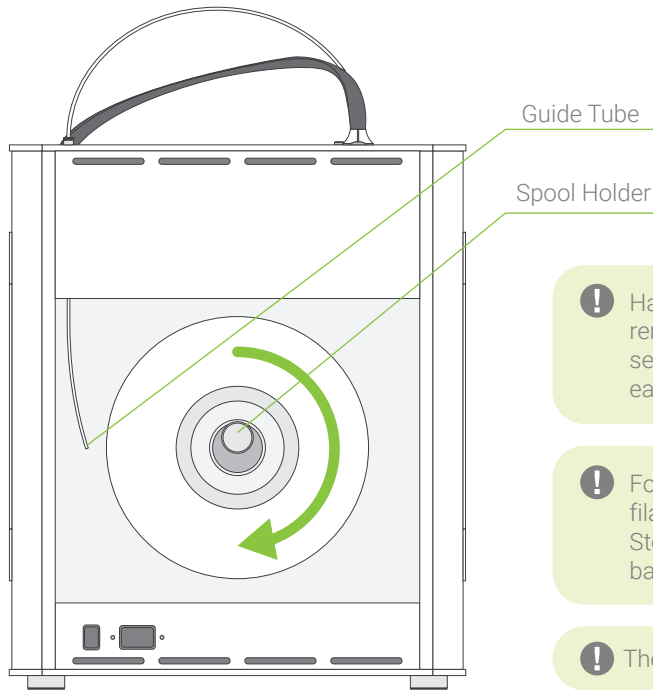
Insert the female end of the power cord into the socket located on the back panel of the printer and the male end into the power socket. Turn on the printer by flipping the power switch to the On position (I).



## 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.

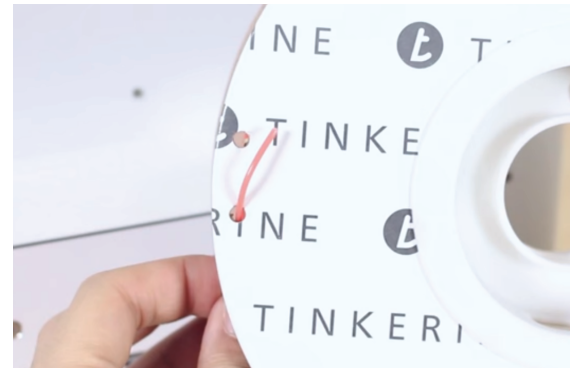
! For long term storage, retract and remove the filament from the printer. PLA filament can become brittle over time as it is exposed to UV and moisture. Store opened spools of filament inside the original packaging or in a sealed bag with a desiccant packet.

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



**Loading**

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



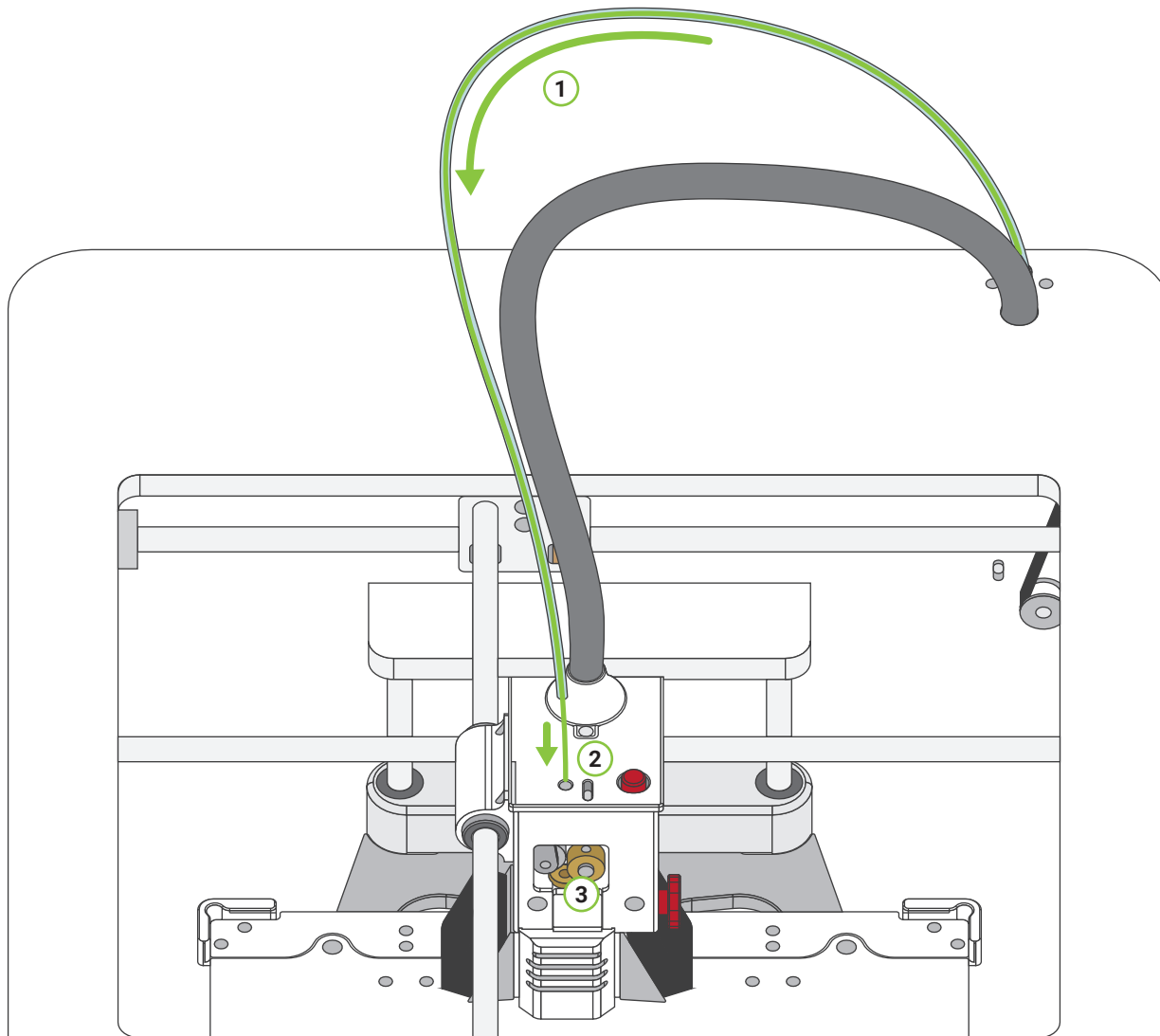
**Removing**

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.

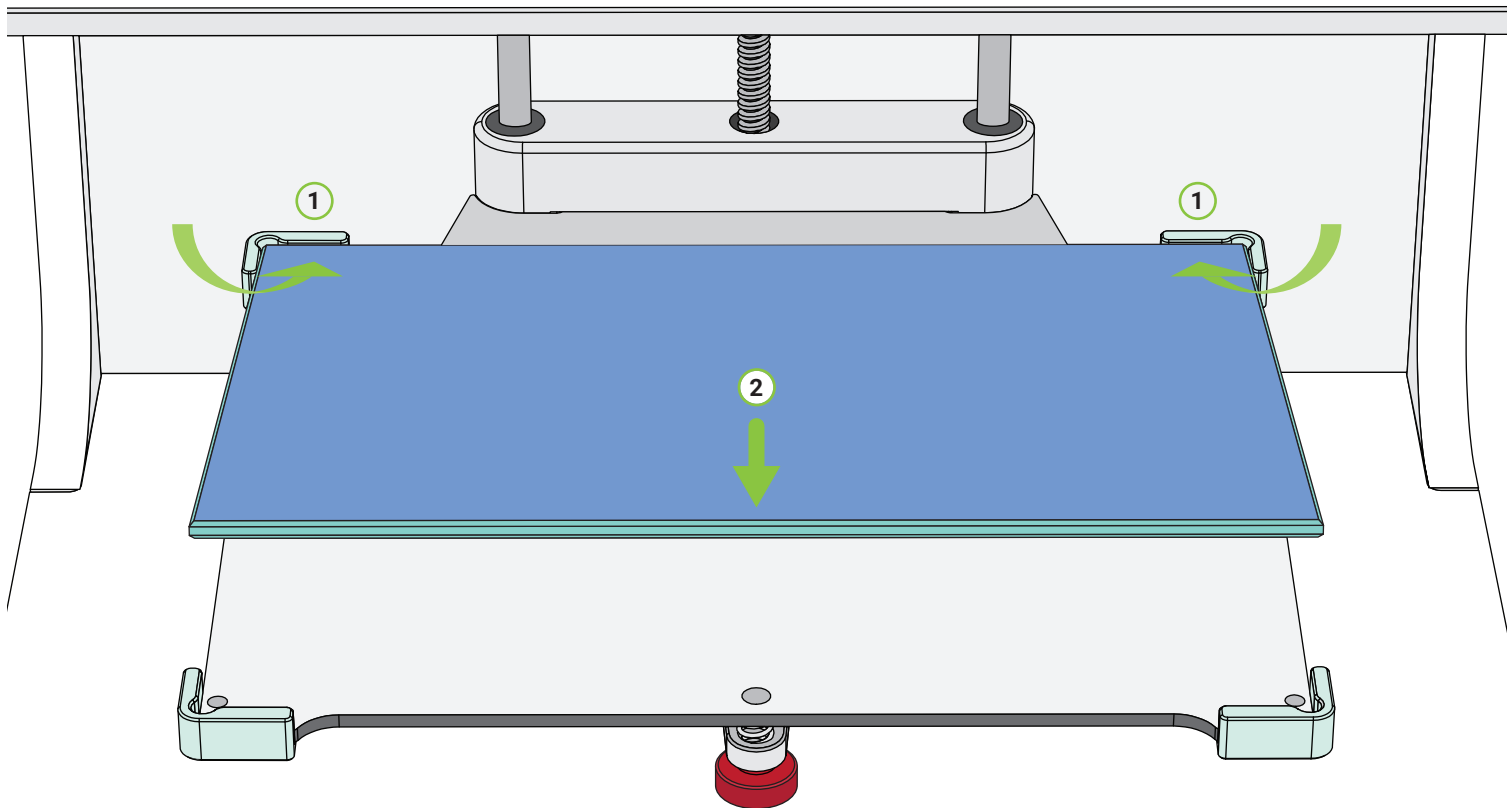


! Trim off the tip of the filament with a pair of scissors if you are having trouble feeding the filament into the hotend.

## Step 7

### Installing the Glass Print Surface

Slide 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. At an angle, slide the glass print surface into the two rear corners of the bed. While gently pushing it against the rear corners, clip the print surface into the two front corners as illustrated below.



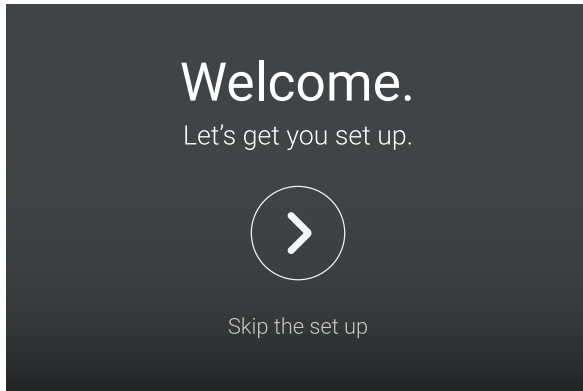
! Replace any worn or damaged blue painter's tape as needed to ensure that your prints stick properly during the printing process.

! 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

### First Time Setup

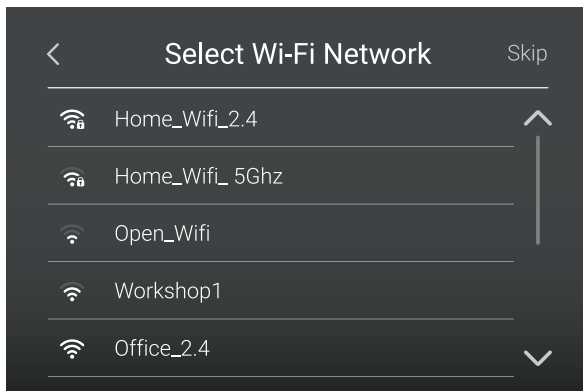
Upon powering up your DittoPro-R for the first time, you'll be prompted to perform a one-time setup for your printer. The setup process will guide you through the steps of naming your printer and connecting it to a wireless network.



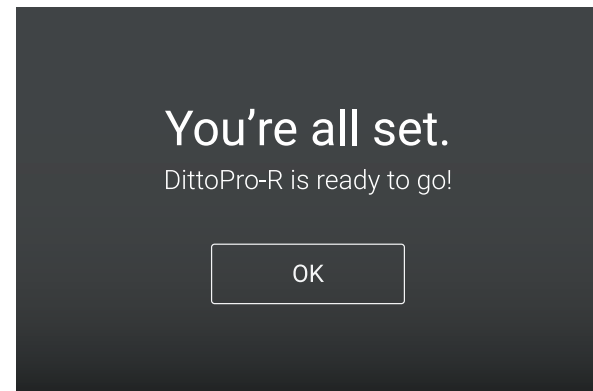
Touch the on-screen button to proceed or select **Skip the setup** to perform the setup at a later time.



Use the on-screen keyboard to type and assign a identification name for your printer. Press **OK** to proceed.



To transfer files for wireless printing, you'll need to connect the printer to a wireless network. Select the network you wish to connect to and enter the password on the following screen. Press **Skip** to setup wireless connection at a later time.

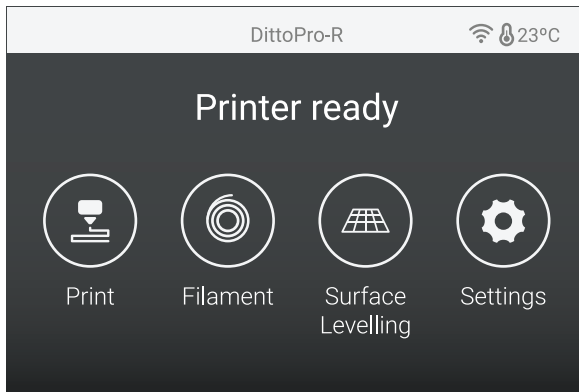


Setup complete! Click **OK** to process to the Home screen.

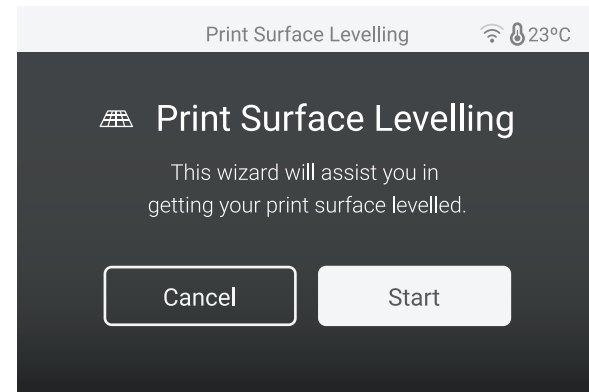
## Step 9

### Print Surface Levelling

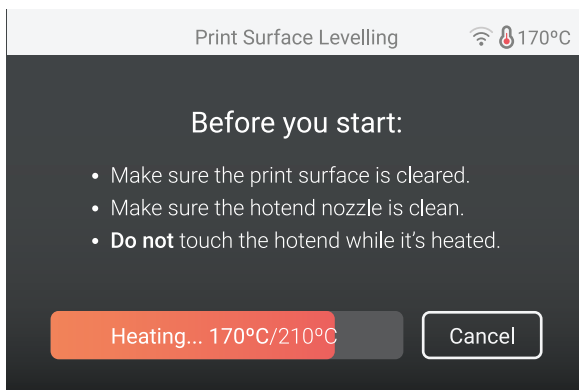
You'll need to perform a print surface calibration for your printer to ensure the print surface is perfectly levelled in relation to the print nozzle. Doing so allows the molten plastic to evenly adhere onto the print surface during printing. It is recommended that you perform the calibration process every time the printer has been transported to a new location.



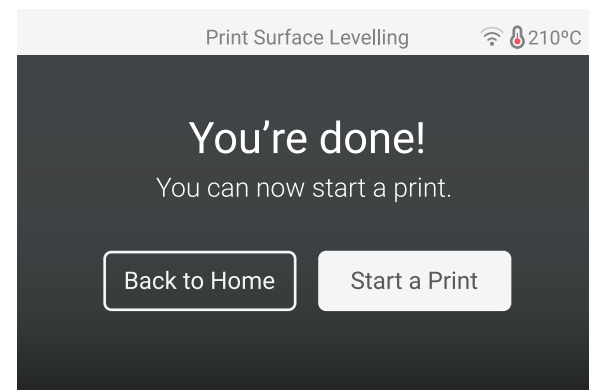
From the **Home Menu**, select **Surface Levelling** to access the calibration wizard.



Press **Start** to initiate the the print surface levelling wizard.



Once pre-heating is complete, follow the on-screen instructions to level the print surface.

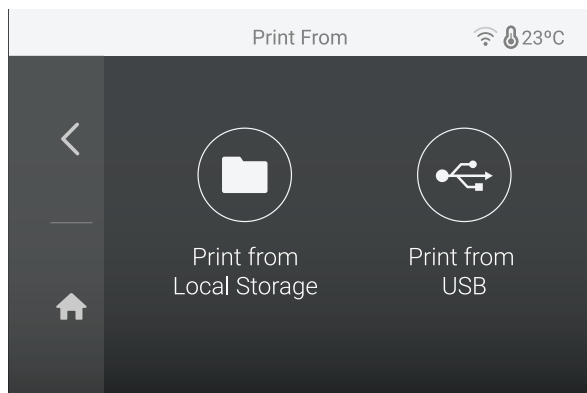


Once the calibration is complete, press **Back to Home** to return to the **Home Menu** or **Start a Print** to select a file for printing.

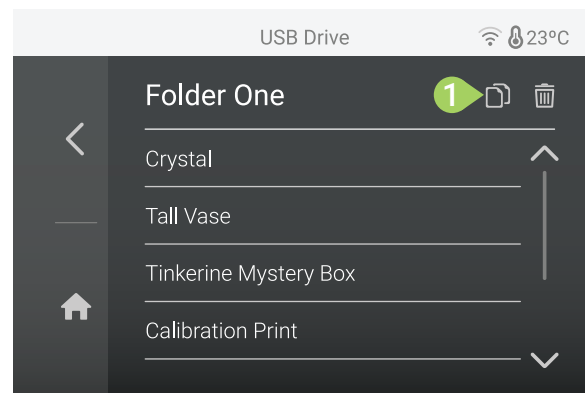
## Step 10

### Starting a Print

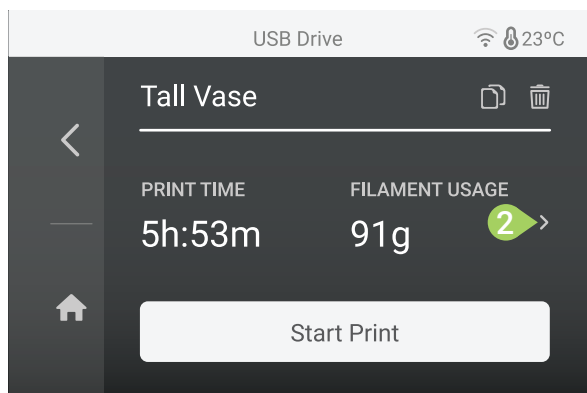
Follow the instructions below to begin your 3D print! Before you proceed, make sure you've installed the filament and performed the print surface calibration.



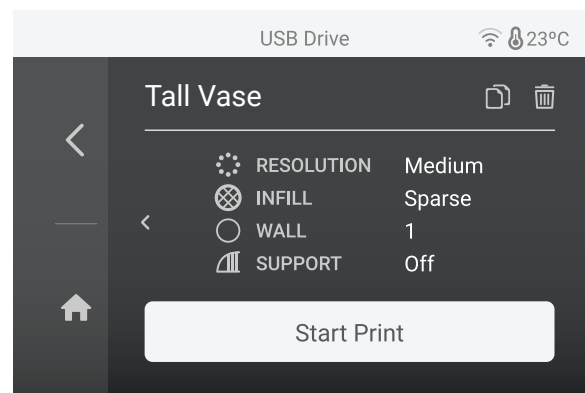
Select **Print** from the Home Menu to access the printing menu. From here, you can select a file stored on the printer or on a connected USB drive.



Select a file to print from the list. Use the Copy button (1) to copy the file from the USB drive into the printer's on-board storage.



Once you have selected a file, the estimated print time and filament usage will be displayed. Press the > button (2) to see more detailed file information. Press **Start Print** to start the print.

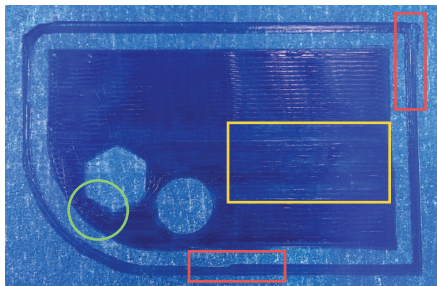
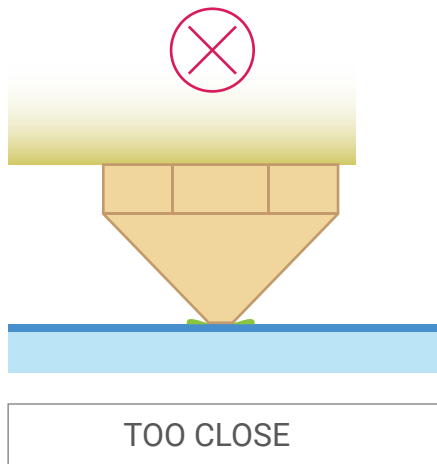


On the secondary file information page, detailed export settings (**resolution, infill, wall, support**) are displayed. The settings are for reference purposes and can not be modified directly from the printer.

# Important!

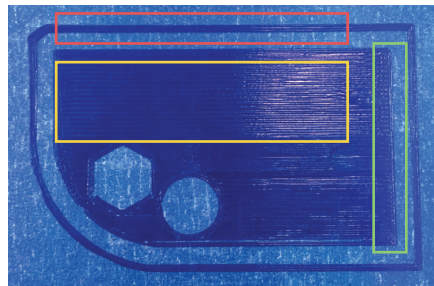
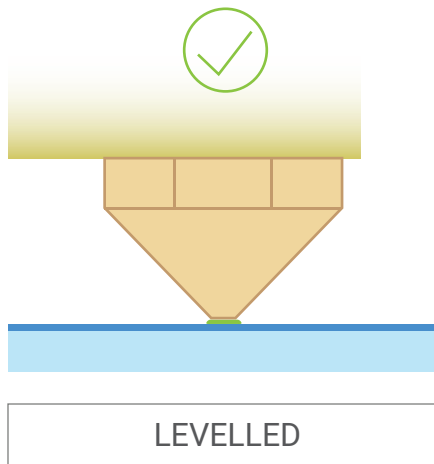
## Ensuring Proper Print Adhesion

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.



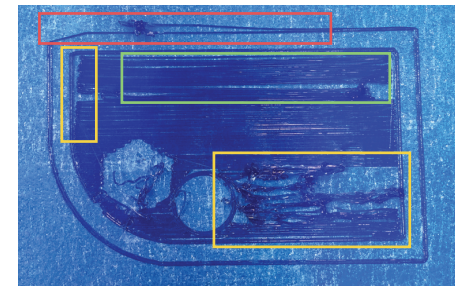
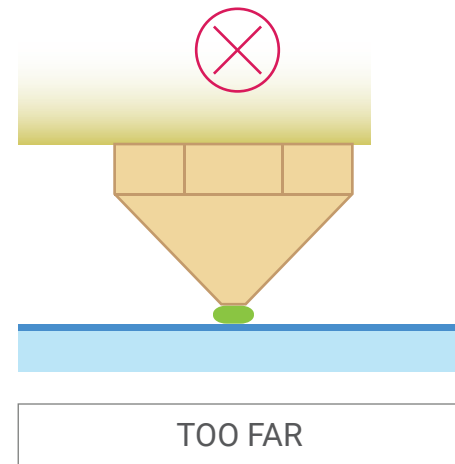
Signs of nozzle too close to print surface:

- (A) Inconsistent width along extrusion.
- (B) Portion of the layer appear thin or non-existent.
- (C) Squished 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:

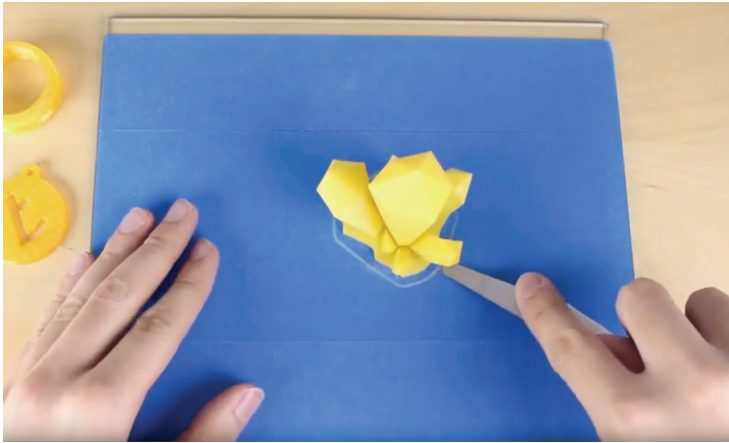
- (A) Filament appear stringy and doesn't adhere to print surface.
- (B) Infill doesn't meet up with perimeter.
- (C) Infill line doesn't stick to other infill lines.



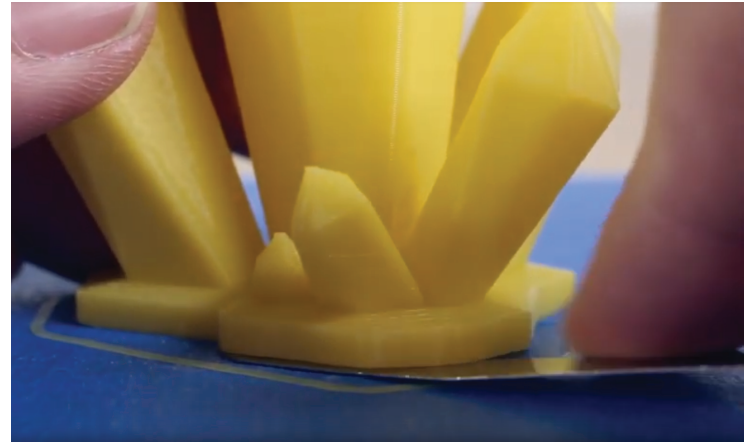
# Final Step

## 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 surface from the printer and place down on a flat surface.

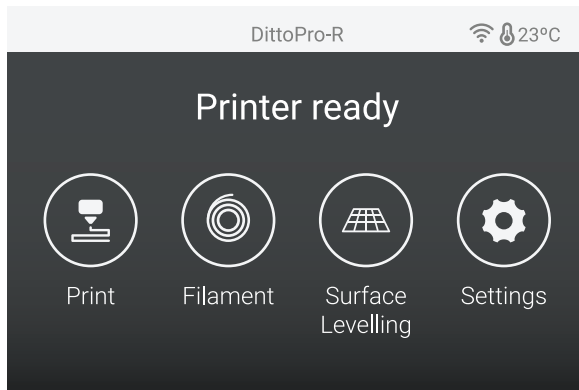


Using the Print Removal Knife, slowly wedge the knife between the print and taped surface and lift upward. Repeat the process around the print until you can easily pop the print off the print surface.

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>



## Additional LCD Menu Settings



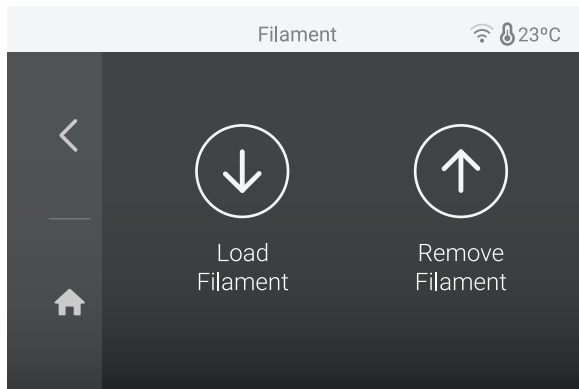
### Home Menu

**Print** - Select a file for printing.

**Filament** - Load/remove filament wizard.

**Surface Levelling** - Print surface calibration wizard.

**Settings** - Settings menu.



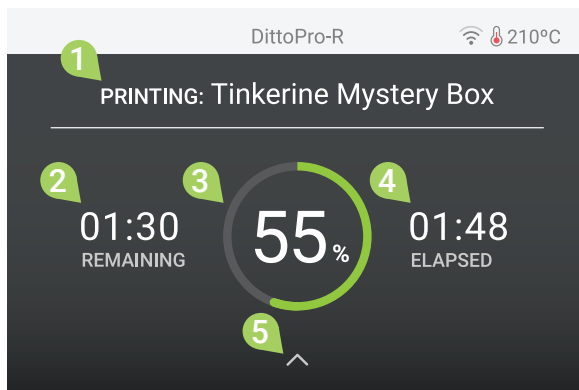
### Filament Menu

Accessed from the **Home Menu**, the Load/Remove Filament wizards will guide users with loading and unloading filament from the printer.

**Load Filament** - Assists the users with loading the filament into the printer.

**Remove Filament** - Assists the users in removing the filament from the printer.

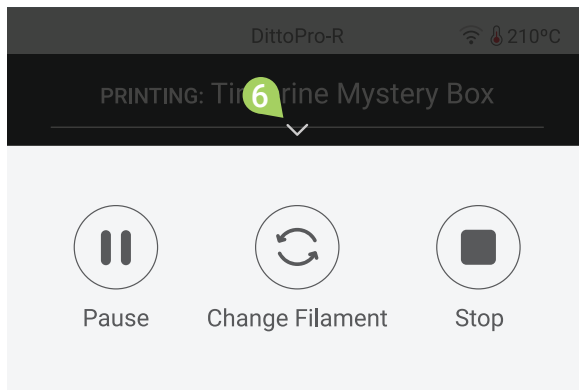
## Additional LCD Menu Settings



### Print Status Menu

Default screen shown when printing is in progress.

1. File Name
2. Estimated remaining print time shown in (Hours : Minutes)
3. Print progress (0-100%)
4. Elapsed print time shown in (Hours : Minutes)
5. Show Print control menu
6. Hide Print control menu



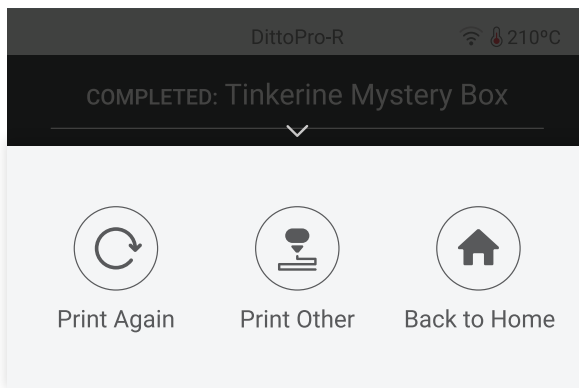
### Print Control Menu

Control menu shown when printing is in progress.

**Pause/Resume** - Pause or resume the current print.

**Change Filament** - Change the filament mid-print.

**Stop** - Cancel the current print.



### Completion Control Menu

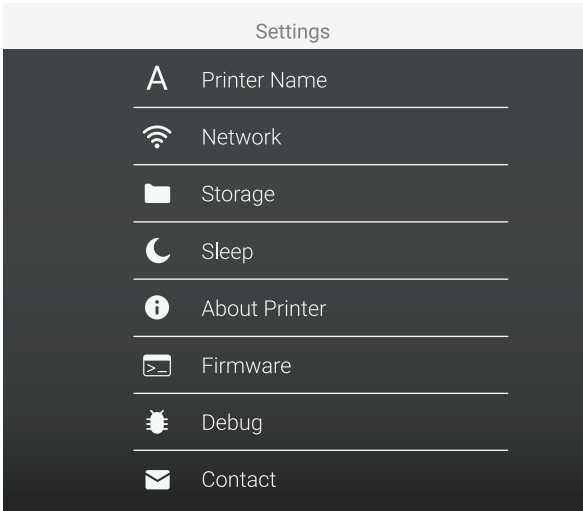
Control menu shown when printing is complete.

**Print Again** - Print the same file again.

**Print Other** - Select a new file for printing.

**Back to Home** - Return to the Home Menu.

# Additional LCD Menu Settings



Settings

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

**Printer Name** - Set or rename printer's identification name.

**Network** - Wireless connection setup.

**Storage** - View and manage on-board storage space.

**Sleep** - Change printer sleep timer.

**About Printer** - Printer information and statistics.

**Firmware** - Print firmware information and update.

**Debug** - Debug menu for printer testing and service.

**Contact** - Tinkerine Tech Support contact information.

# 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, Wifi
Consumption	~7W (sleep), ~17W (idle), ~72W (operational)
Electronics	RAMPS 1.4, AT mega 2560, A4988 stepper driver, DRV8825 stepper driver, BCM2837 micro-processor
Power Input	AC 110-220V, 50-60 Hz
Power Output	DC 12V, 15A

## CERTIFICATION

cULus	Passed
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## Questions?

Phone:

**1-604-288-8778** (Vancouver, BC)

**1-844-846-5377** (International)

Email:

**[contact@tinkerine.com](mailto:contact@tinkerine.com)**