2025

3D Printer Guide: Dremel 3D45

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Contents

3D Printer Kit List

- Dremel 3D45 3D Printer with Power Cable (IEC C13)
- Spool of Filament
- 3D Printed Filament Hook
- USB Stick

Other Requirements

- A Windows Device with Dremel DigiLab 3D Slicer Software Installed *(See Section 2)*
- At Least one 3D Model File In .STL Format *(See Section 1)*

Introduction to 3D Printing with the Dremel 3D45

3D printing is a way of creating physical objects from digital designs—think of it like printing, but instead of ink on paper, a printer builds up layers of plastic to form a solid shape. The Dremel 3D45 uses a material called PLA (Polylactic Acid), a plant-based plastic that's easy to work with and environmentally friendly.

Here's how it works: First, you create a digital model using 3D design software, or download a digital model from a repository such as Thingiverse. This file is then prepared for printing using Dremel's slicing software, Digilab 3D Slicer, which converts it into instructions the printer can understand. Once the file is loaded onto the printer and PLA filament is inserted, the printer heats the filament until it melts. The melted plastic is then carefully laid down in thin layers, one on top of another, until your object is complete.

You don't need to be a tech expert to get started. The Dremel 3D45 is designed for ease of use, with a touchscreen interface, automatic bed levelling, and guided setup. Most users can begin printing by simply loading a pre-made file, pressing a few buttons, and watching the printer bring it to life.

Expect the process to take time—small prints may take under an hour, while larger or more detailed ones can take several hours. It's normal for prints to require some trial and error at first, but with patience and a bit of practice, you'll soon be creating custom tools, models, and more.

3D printing opens up a world of creativity—whether you're making something useful, decorative, or just for fun. This guide will walk you through everything you need to know to get started confidently with your Dremel 3D45.

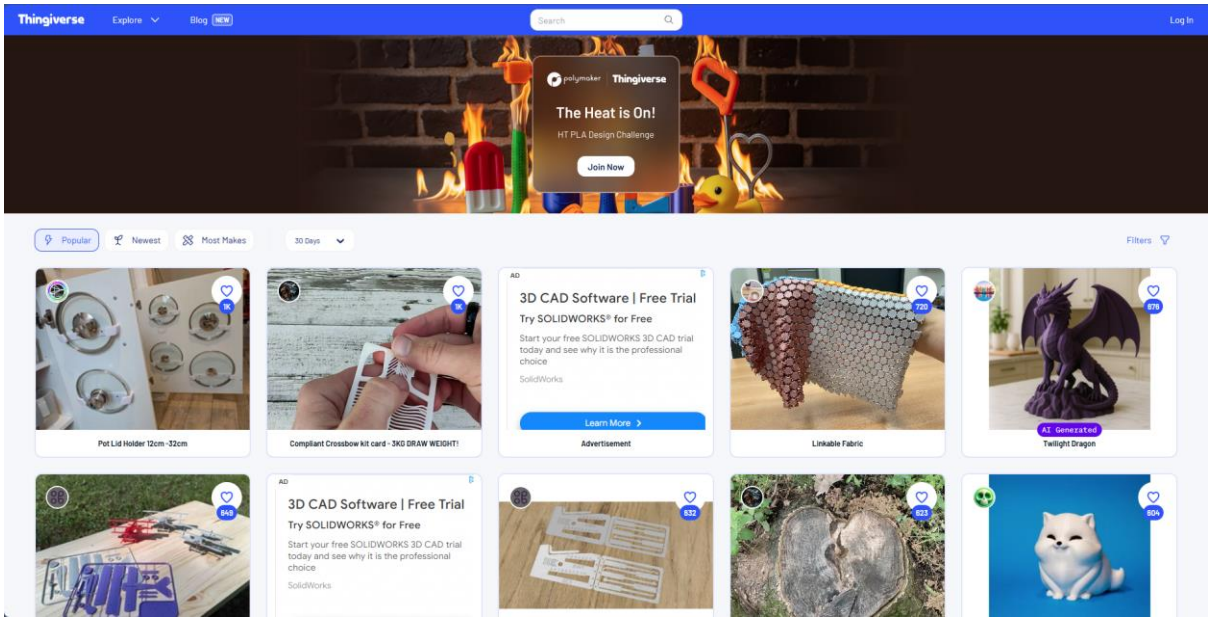
1. Finding / Creating and Preparing a Digital 3D Model to Print

Before you can print something with your Dremel 3D45, you'll need a digital 3D model—this is the file that tells the printer what to build.

The easiest way to start is by downloading ready-made models from trusted online libraries like Thingiverse.com. These websites offer thousands of free 3D designs, from tools and toys to household items and artistic creations. Simply browse, download a file (in .STL format), and you're ready for the next step. More complex models will have multiple files, one for each component. These models are best avoided unless you are happy to assemble the parts upon completion using a strong adhesive.

Thingiverse:

https://www.thingiverse.com/



If you're feeling creative or have something specific in mind, you can also design your own models. For beginners, free tools like TinkerCAD are a great way to start—these run in your web browser and use simple shapes and drag-and-drop controls. With more experience, you might explore other design tools or even use programming languages like Python to generate models for advanced or custom applications. Creating your own model can be extremely rewarding, but will require time investment to develop the skillset required to create your vision – please bare this in mind when choosing whether to download a ready-made model or create your own.

Once you have your model, it needs to be prepared—or *sliced*—for printing. Dremel provides its own slicing software (Dremel DigiLab 3D Slicer), which converts your 3D model into layers and instructions that the printer can understand.

2. Installing and Using the Dremel DigiLab 3D Slicer Software

Installation:

The Dremel DigiLab 3D Slicer software is developed for use with the Windows operating system and will likely need to be installed by an IT Technician if the chosen device belongs to School.

The software can be downloaded from the following website:

https://www.dremel.com/ap/en/digilab/software

Preparing Your Model to Print:

Step 1: Open the Dremel DigiLab 3D Slicer

Launch the DigiLab software on your computer. If this is your first time using it, you'll be asked to set up a printer (Step 2). Otherwise, skip to Step 3.

Step 2: Add the Dremel 3D45 Printer

Go to **Settings > Printer > Add Printer**.

Choose **Dremel** from the list of manufacturers.

Select **Dremel 3D45** and click **Add**.

The printer profile will be set up with recommended default settings.

Step 3: Import a 3D Model

Click **Open File** or drag and drop your .STL model file into the slicer window.

Your model will appear on the virtual build plate.

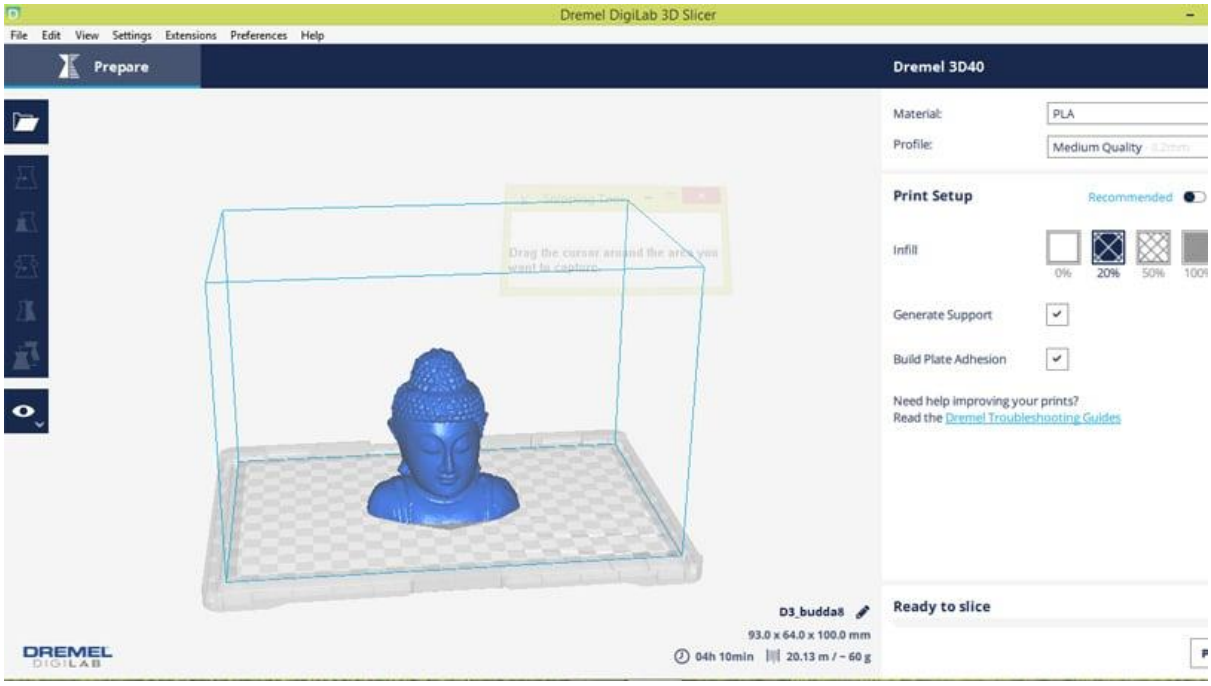
Use your mouse to move, scale, or rotate the object if needed. (For most models, no changes are necessary.)

Step 4: Check the Material Settings

Make sure **PLA** is selected as the material.

This is usually the default. You can double-check in the **Material** tab or the printer settings.

Leave the print quality at **Medium** for a good balance of speed and detail.



Step 5: Slice the Model

Click **Prepare** or **Slice** (depending on software version).

The software will process your model and give you an estimated print time and filament usage.

Step 6: Save the File

Once slicing is complete, click **Save to File**.

Save the .gcode file to the included USB drive.

3. Preparing the 3D Printer for Printing

Step 1: Turn On the Printer

Plug in the Dremel 3D45 and flip the power button on the rear panel.

Wait for the touchscreen to load and display the main menu (can take 2-3 minutes).

Step 2: Insert the USB Drive

Plug your USB drive (containing the .gcode file) into the port on the right side of the front panel.

Step 3: Select the File to Print

On the touchscreen, tap **Build**.

Choose **USB** as the source.

Browse and select your model's .gcode file from the list.

Step 4: Start the Print

The printer will begin heating the nozzle and print bed to the correct temperatures.

Once heated, the print will start automatically.

Tip: *Stay nearby during the first few minutes to check that the filament sticks properly to the bed. If the print doesn't start cleanly, you can cancel and try again. For your first few prints, it is recommended to select a model with a base that has a larger surface area as this tends to equate to higher success rates.*

4. When Prints Go Wrong: Bed Adhesion Issues & Cleaning Up

Even with the right settings, sometimes a print doesn't go as planned. One of the most common issues—especially for beginners—is when the first layer of the print doesn't stick properly to the build plate.

What a Failed Print Looks Like (Due to Poor Bed Adhesion):

- The filament looks messy or tangled instead of forming a smooth first layer.
- The print may lift or curl up at the edges, or not stick at all.
- You might see the nozzle "dragging" loose strands of plastic around.
- The printer continues moving, but nothing solid is forming.

If you see any of this in the first few minutes of printing, it's best to cancel the job and start fresh.

How to Safely Clean the Printer Before Trying Again:

1. Cancel the Print

On the touchscreen, tap **Pause > Cancel**.

Wait for the printer to cool down—especially the hot nozzle.

2. Remove Loose Filament

Use your fingers or a scraper or tool with a flat-edge if necessary to remove any stuck or stringy filament from the build plate.

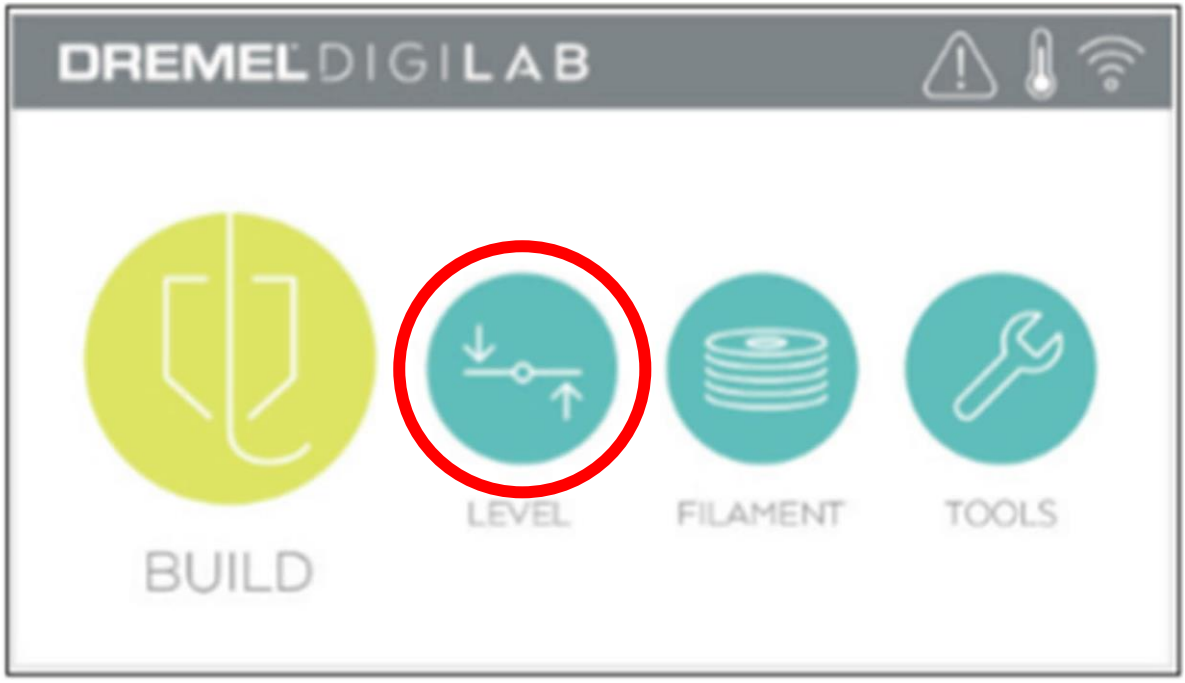
3. Clean the Build Plate Surface

Once cool, wipe the build plate with a lint-free cloth and a bit of isopropyl alcohol or board cleaner to remove dust, oil, or leftover glue.

If you're using a glue stick for better adhesion, apply a fresh, thin layer after cleaning.

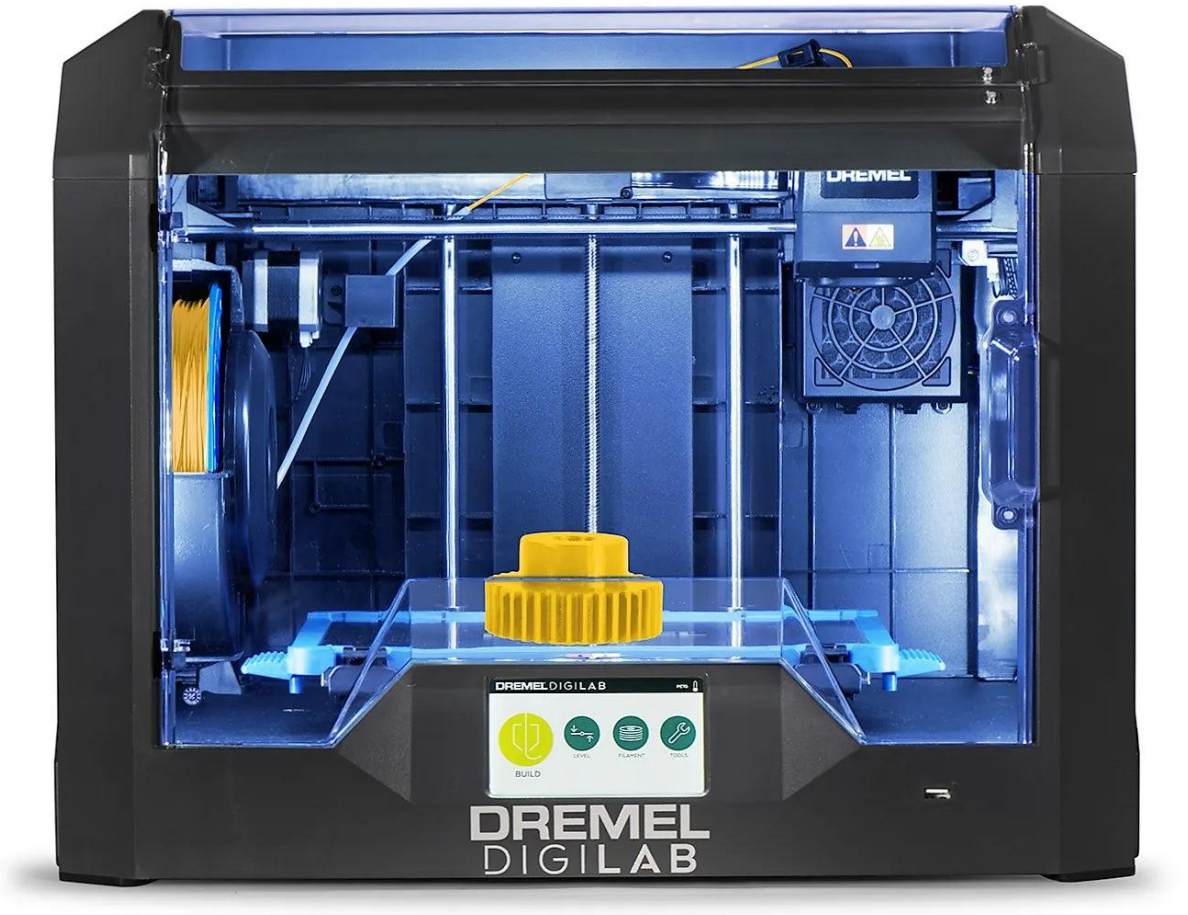
4. Re-level the Bed (if needed)

If poor adhesion continues, try running the auto bed levelling tool on the touchscreen to make sure the build plate is even.



5. Removing a Completed Print & Getting Ready for the Next One

Once your print is finished, the Dremel 3D45 will cool down automatically and return the build platform to the bottom for easy access. Before starting another print, it's important to remove the finished object carefully and tidy up the printer.



How to Remove a Completed Print Safely:

Wait for the Build Plate to Cool

Let the plate and nozzle cool to avoid burns or accidental damage to your print.

Remove the Print

Gently wiggle the completed print side-to-side, or slide a scraper tool under the edge of the print.

Work your way around slowly—don't force it!

Avoid damaging the surface.

Never use sharp metal tools under the print. This can scratch or gouge the build surface.

Preparing for Your Next Print:

Check the Build Plate Surface

Remove any leftover bits of filament or glue residue.

Wipe with a lint-free cloth and isopropyl alcohol / board cleaner if needed.

Reapply Glue Stick (if used)

A fresh, thin layer of glue stick (included with the printer) can help the next print stick better.

Inspect the Nozzle

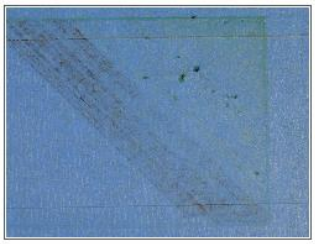
Check for any dried filament stuck to the tip.

Check Filament Supply

Make sure there’s enough PLA left on the spool for your next print. Replace the spool if it's running low – contact AIT if another spool is required.

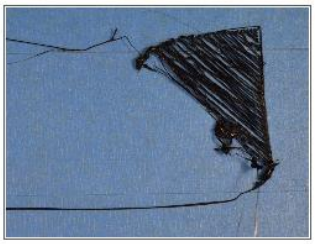
Once everything is clean and in place, your Dremel 3D45 is ready for its next project—just repeat the process!

6. Print Quality Troubleshooting



Not Extruding at Start of Print

Printer does not extrude plastic at the beginning of the print

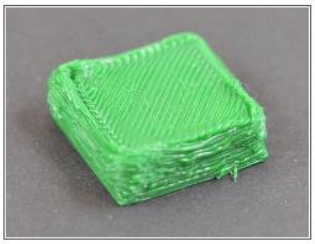


Not Sticking to the Bed

The first layer does not stick to the bed and the print quickly fails

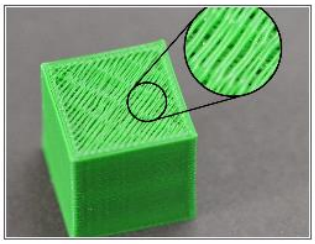
Under-Extrusion

Printer does not extrude enough plastic, gaps between perimeters and infill



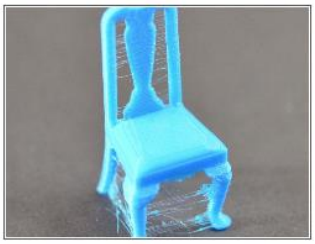
Over-Extrusion

Printer extrudes too much plastic, prints looks very messy



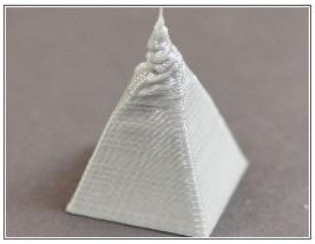
Gaps in Top Layers

Holes or gaps in the top layers of the print



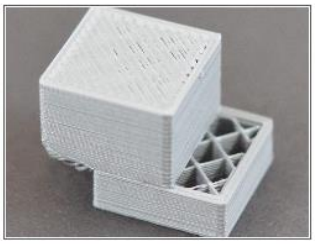
Stringing or Oozing

Lots of strings and hairs left behind when moving between different sections of the



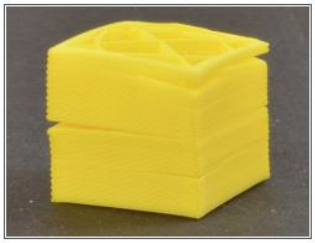
Overheating

Small features become overheated and deformed



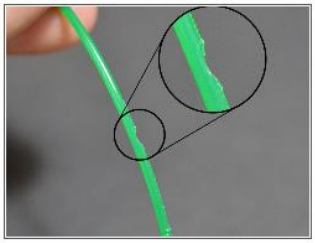
Layer Shifting

Layers are misaligned and shift relative to one another



Layer Separation and Splitting

Layers are separating and splitting apart while printing

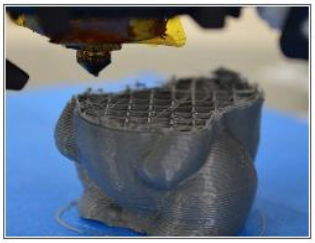


Grinding Filament

Plastic is being ground away until the filament no longer moves, otherwise known as "stripped" filament

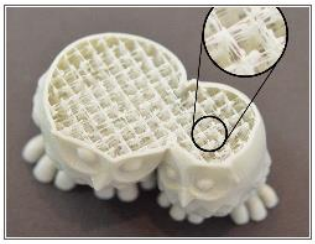
Clogged Extruder

Extruder is clogged or jammed and will no longer extrude plastic from the nozzle tip



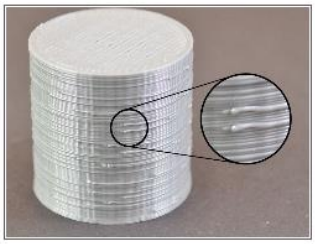
Stops Extruding Mid Print

Printer stops extruding plastic randomly in the middle of a print



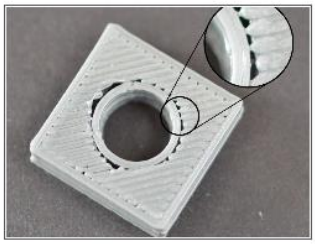
Weak Infill

Very thin, stringy infill that creates a weak interior and does not bond together well



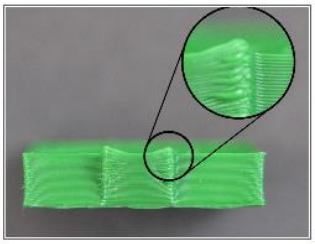
Blobs and Zits

Small blobs on the surface of print, otherwise known as zits



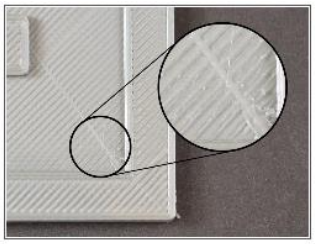
Gaps Between Infill and Outline

Gaps between the outline of the part and the outer solid infill layers



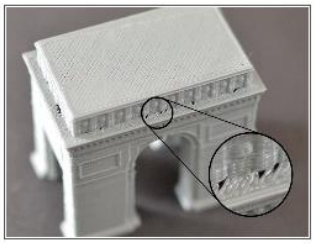
Curling or Rough Corners

Corners of the print tend to curl and deform after they are printed



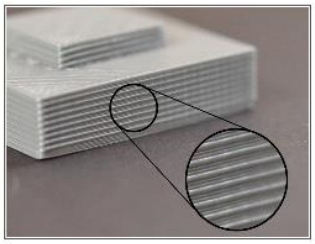
Scars on Top Surface

The nozzle drags across the top of the print and creates a scar on the surface



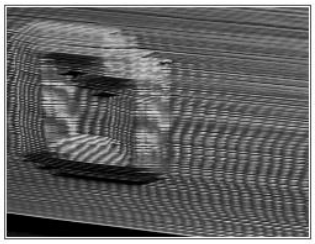
Gaps in Floor Corners

Gaps in the corners of the print, where the top layer does not join to the outline of the next layer



Lines on the Side of Print

Side walls are not smooth, lines are visible on the side of the print



Vibrations and Ringing

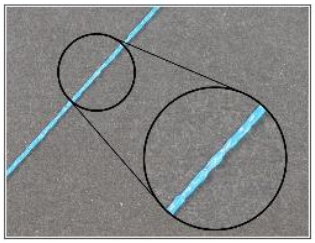
Vibrations that cause oscillations on the surface of the print, otherwise known as "ringing"

Gaps in Thin Walls

Gaps between thin walls of the print where the perimeters do not touch

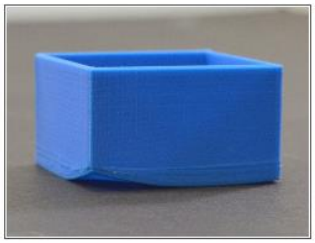
Small Features Not Printed

Very small features are not printed or are missing from the software preview



Inconsistent Extrusion

Extrusion amount tends to vary and is not consistent enough to produce an accurate



Warping

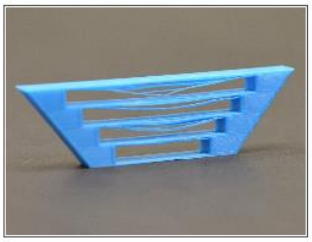
Warping of large parts, particularly with high temperature materials such as ABS

Poor Surface Above Supports

Poor surface quality on the underside of the part where it touches the support structures

Dimensional Accuracy

Dimensional issues where the measured dimensions do not match the original design intent



Poor Bridging

Sagging, drooping, or gaps between the extruded segments of your bridging regions

For more in-depth explanations of each print quality issue, please visit:

https://www.simplify3d.com/resources/print-quality-troubleshooting/

Frequently Asked Questions

Question	Answer
1. What file types can I use to 3D print with the Dremel 3D45?	Use .STL files for 3D models. These are converted to .gcode using the Dremel DigiLab Slicer software.
2. Where can I find 3D models to print?	Download ready-made models from sites like Thingiverse.com. Look for beginner-friendly designs.
3. Can I design my own 3D models?	Yes. Use software like **TinkerCAD** (easy, web-based), **Fusion 360** (advanced), or create models via code using Python libraries like **OpenSCAD** or **VPython**.
4. What filament should I use?	The Dremel 3D45 is designed for use with many types of filament, however we recommend PLA. It's reliable, safe, and easy for most users. Make sure PLA is selected in both the slicer and on the printer.
5. How do I import and slice a model in DigiLab Slicer?	1. Open **DigiLab Slicer** 2. **Import** a .STL file 3. Select **PLA** as material 4. Click **Prepare/Slice** and save to USB or send to printer.
6. Why won't my print stick to the build plate?	Possible causes include dust, no adhesive, or incorrect levelling. Try cleaning the plate, reapplying glue stick, and re-running auto-levelling.
7. Can I pause or stop a print midway?	Yes. Use the touchscreen to pause or cancel a print. Useful if there are issues like warping or stringing.
8. How do I remove a finished print safely?	Wait for the build plate to cool. Gently wiggle the print side-to-side and lift the model. Use a scraper tool if necessary. Avoid using metal tools to prevent surface damage to the build bed.
9. How do I prepare the printer for another print?	Remove the old print, clean the build plate, check filament, reapply glue stick if needed, and ensure PLA is loaded.
10. What should I do if something goes wrong?	Cancel the print *(7 / Section 4)* and contact the AIT Helpdesk: **Phone:** 01159 170 197 **Website:** helpdesk.aitn.co.uk **Email:** support@aitn.co.uk

Need Help or Further Support?

If you're ever unsure about any part of the 3D printing process, or if you need assistance with setup, operation, or troubleshooting, please don’t hesitate to contact the AIT Helpdesk. Our team is here to support you.

AIT Helpdesk Contact Details:

Phone: **01159 170 197**

Website: **helpdesk.aitn.co.uk**

Email: **support@aitn.co.uk**

We're happy to assist with any questions you may have—whether you're just getting started or need guidance on a specific issue.