



PLA TIPS & TRICKS

SOFTWARE / PRODUCT / FINISHING

Overview

These tips and tricks are designed to help you create better and more stable parts using PLA materials on any of the Stratasys F123™ Series 3D Printer.

Part Design

Thin-walled parts are not optimal with the use of PLA, especially ones that only get a single contour of toolpath generated as there is an issue with the open seams. Therefore, creating parts thick enough to get a double contour and hiding the start will print as expected.

Processing Guidelines

Most PLA parts are designed to be printed without support so don't be afraid to use the "base only" support option.

When using PLA support the following tips are useful:

- Using linked contours are best since they hide the start of a toolpath, which may be under-extruded.
- Avoid using support when building small features. PLA can generally bridge one inch fairly well and small overhangs without support.
- In the event a part fails because it popped off the substrate or support base, reorient the part in Insight™ or GrabCAD Print™ and increase the surface area.
- Support removal is easy on large flat areas and increases the surface area of the part to tray, therefore increasing adhesion.



PLA - TIPS & TRICKS

Packing Guidelines

You can print many parts in a single build so fill the tray. This may increase the time between layers, but will make support removal easier. If you have a part with small or detailed features, try building this part by itself or as a pack of the multiple parts that are the same.

System Preparation

Trays can be reused, especially when there is a large amount of surface area between the base and the tray. However, note that the adhesion decreases with each use. When printing a critical part always use a fresh build tray.

Support Removal

Use the knife/scrapper to get between largest areas of part and support for cleaner and easier support removal.

TIP

Necessary tools - pliers, knife or scraper

When removing support, if you are having trouble getting it to pop off the tray, try a different side as different areas of the part may have higher adhesion than others (likely around seams).

TIP

When printing a square block, the first side's base may not remove easily. Turn the part 90 deg and try to remove from that side. When printing a cylinder, try turning in 20 degree increments until you hit an area where the base removes easily.

Don't try support removal on parts that are freshly printed (<60 seconds) as the model could still be warm and is more likely to deform. Same for parts that trigger - Minimum Layer Timer or are solid. Give them more time to cool or you risk deforming the parts when you handle them.

CONTACT

For questions about the information contained in this document, contact Stratasys at www.stratasys.com/contact-us/contact-stratasys.

stratasys[®]

E info@stratasys.com / STRATASYS.COM

ISO 9001:2008 Certified

HEADQUARTERS

7665 Commerce Way, Eden Prairie, MN 55344
+1 800 801 6491 (US Toll Free)
+1 952 937 3000 (Intl)
+1 952 937 0070 (Fax)

2 Holtzman St., Science Park, PO Box 2496
Rehovot 76124, Israel
+972 74 745 4000
+972 74 745 5000 (Fax)

© 2014, 2015 Stratasys. All rights reserved. Stratasys, Stratasys logo and FDM are registered trademarks of Stratasys Inc. Insight, SR-100, SR-110 and WaterWorks are trademarks of Stratasys Inc. All other trademarks are the property of their respective owners, and Stratasys assumes no responsibility with regard to the selection, performance or use of these non-Stratasys products. Product specifications subject to change without notice. Printed in the USA. BP_FDM_Nylon12_1215

The information contained herein is for general reference purposes only and may not be suitable for your situation. As such, Stratasys does not warranty this information. For assistance concerning your specific application, consult a Stratasys application engineer. To ensure user safety, Stratasys recommends reading, understanding, and adhering to the safety and usage directions for all Stratasys and other manufacturers' equipment and products. In addition, when using products like paints, solvents, epoxies, Stratasys recommends that users perform a product test on a sample part or a non-critical area of the final part to determine product suitability and prevent part damage.