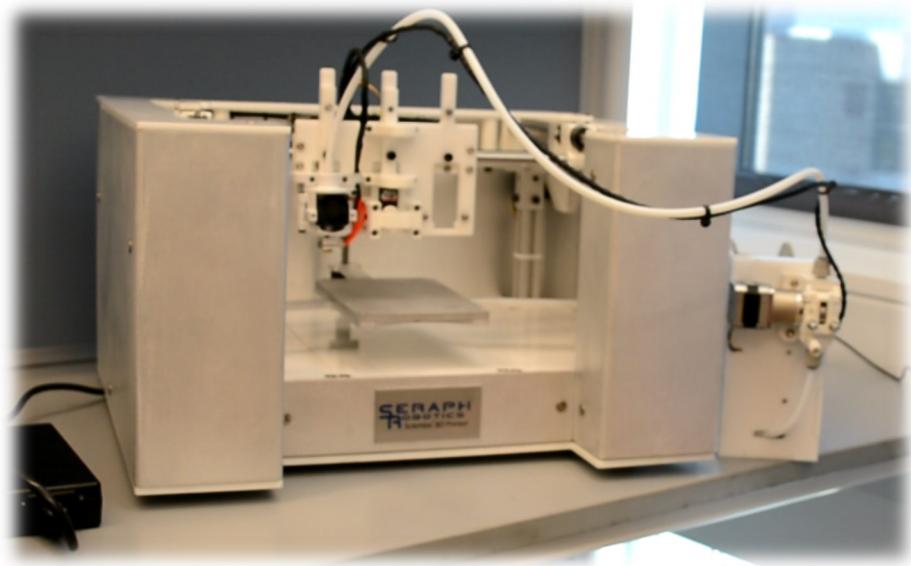




FILAMENT EXTRUSION TOOL

USER GUIDE



Recommended Materials: ABS/PLA filament



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Plastic Printing Guide

Step One

To install the Plastic Tool, place it in one of the two left-most bays on a single, dual, or triple tool carriage

Step Two

Install a second tool if bay 1 & 2 are not both already occupied. You do not need a syringe loaded, but do need the electrical connection connected for the plastic tool to function.

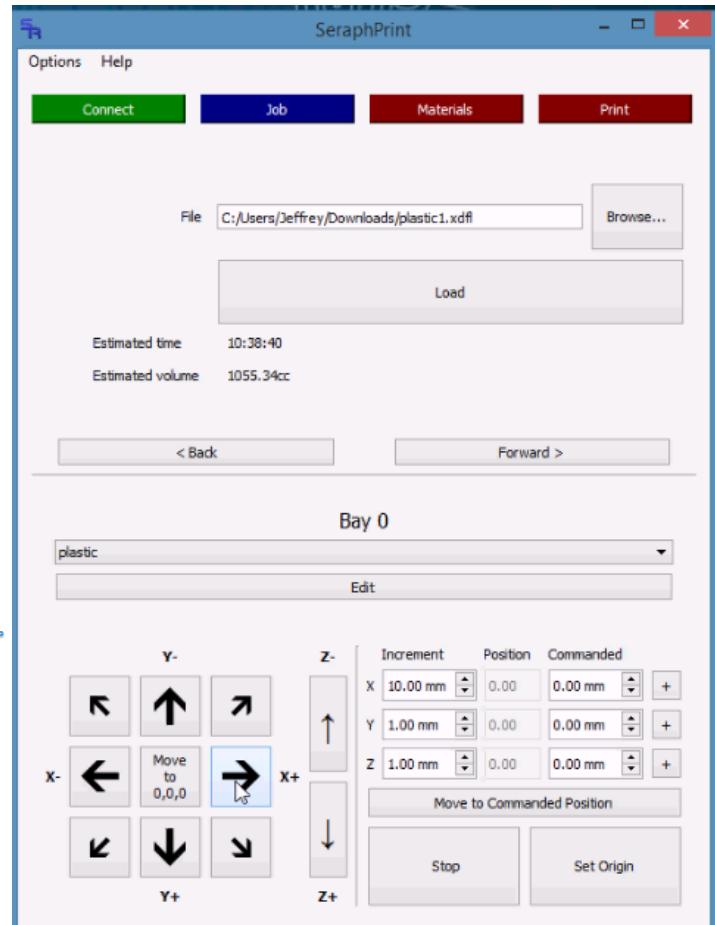
Step Three

Plug in and power on the printer and plastic tool and load the appropriate XDFL and Config file in Seraph Print for a plastic print job. Be careful of high temperatures.

Step Four

Proceed through the screens. You can jog the printer to verify it is properly connected. Then select “plastic” tool in the appropriate bay (0=left, 1=middle, etc.) and the head will begin to heat. Then, send one or two additional small jog commands to move the tool head (without crashing it), and wait for the jog controls to become responsive. (In other words, it won’t move at first.) Wait! Do not send more jog commands to avoid crashing.

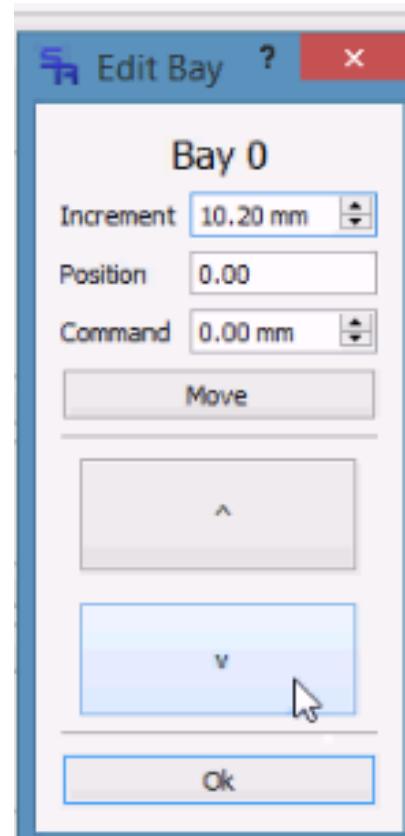
When the jog controls are responsive and the printer moves, you know the heat-up command completed and tool is at temperature. This can take several minutes, so be patient and do not touch the hot head.



Plastic Printing Guide

Step Five

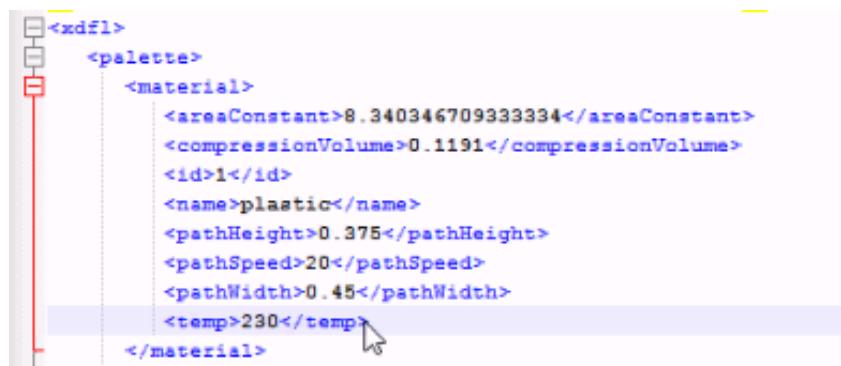
You can now click “edit bay” to move the filament forward or backward through the head from the reel. Use approx. 10mm increments for quick priming of a loaded tool, and 100mm increments for advancing the reel that is not already loaded (i.e. as in a new reel). You want to extrude a few drops from the end of the printer before starting the job to prime the system. Remove excess with pliers. Please note, that this is the same procedure you’ll use to remove filament reels. If necessary, you may wish to increase the temperature value in the XDFL (or calibration) to make removal easier. If the head is not hot and the plastic not liquefied at the tool, it will stick. Remember, if you just want to prime or remove filament, then it doesn’t matter which XDFL file you load into SeraphPrint to gain access to the controls. The only parameter that matters is temperature, so your head is at the right temperature for your desired operation (i.e. printing or removing filament).



Down arrow = extrude

Up arrow = retract

Step Six

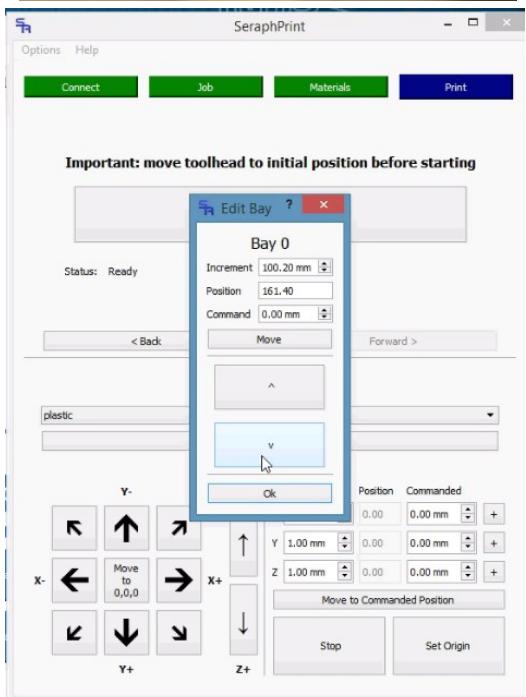
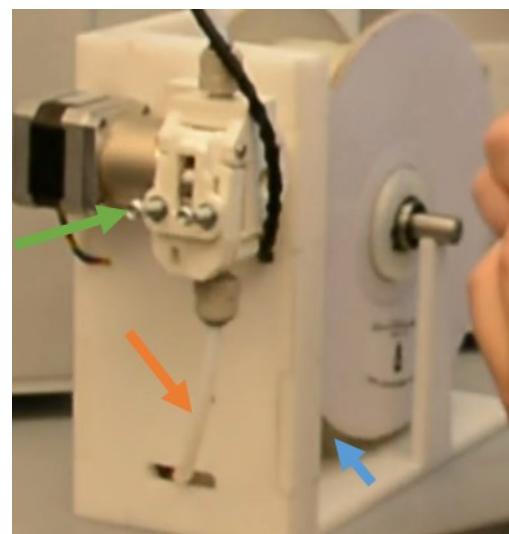


With the heated and primed head, you can jog the printer to the appropriate start position and follow normal printing procedure.

Plastic Printing Guide

Loading a new Filament

1. Install the bearings in the filament reel
2. Thread the filament (blue arrow) through the plastic guide shaft (orange arrow). You can remove the shaft or reel to do this.
3. Attach guide shaft to reel feeder mechanism
4. Unscrew filament catch and push filament into drive mechanism (green arrow)
5. Visually confirm filament in drive mechanism and retighten bolt
6. Load a test filament XDFL file to SR Studio, select printer tool in appropriate bay and heat up tool (be careful not to burn yourself)
7. Send a jog movement command and wait until printer can perform it
8. When it does, you're at temperature. Do NOT send extraneous commands or when the printer head is hot it will probably crash trying to perform the backlog of commands.
9. Then use the printer commands to advance the filament in 100mm increments until it reaches the head. Then use 10mm increments to complete the priming.
10. When material is extruded smoothly, use pliers to pull off the excess and you can proceed to normal printing procedure.



Plastic Printing Guide

Unloading a Filament

1. Load a test filament XDFL file to SR Studio, select printer tool in appropriate bay and heat up tool (be careful not to burn yourself). Your test XDFL should have a temperature > or = to ideal extrusion temperature. Higher temperatures will help melt plastics to make them easier to pull out of the tool. Use this trick to trouble shoot.
2. Send a jog movement command and wait until printer can perform it
3. When it does, you're at temperature. Do NOT send extraneous commands or when the printer head is hot it will probably crash trying to perform the backlog of commands.
4. Then use the printer commands to retract the filament in 100mm increments at least until it crosses the head.
5. Once it is clear of the tool head, you can unscrew the drive mechanism clamp and manually pull the filament out.
6. You may wish to discard the filament that was in the tube as it is often weakened by the process.
7. If high temperature and pulling with pliers doesn't work, you may need to use hand tools to help pull the filament loose from the head. We recommend using high temperature to melt plastic and break connection that way.

