

## *The MakerBot Replicator User Guide*

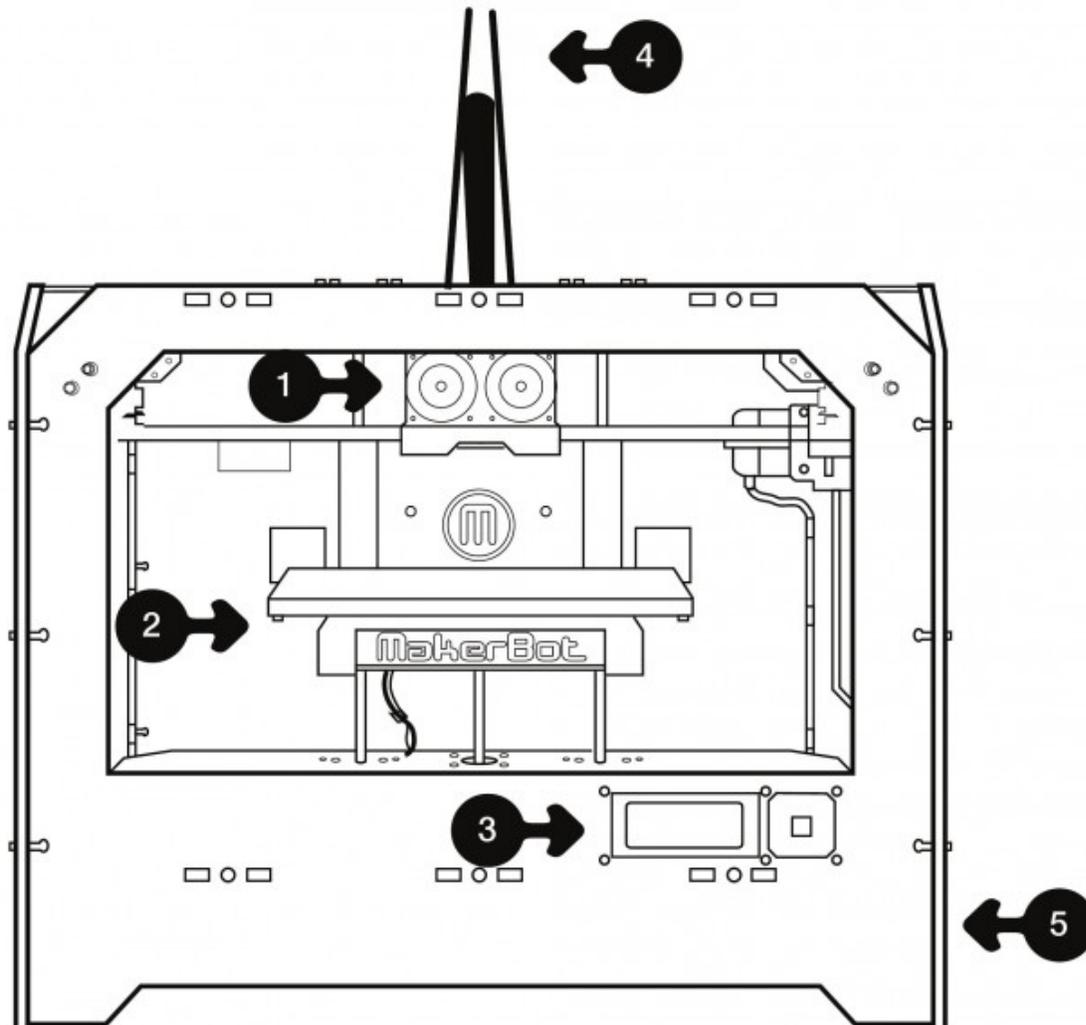
### **Safety Information**

**Please read or you can be severely injured!**

Caution:

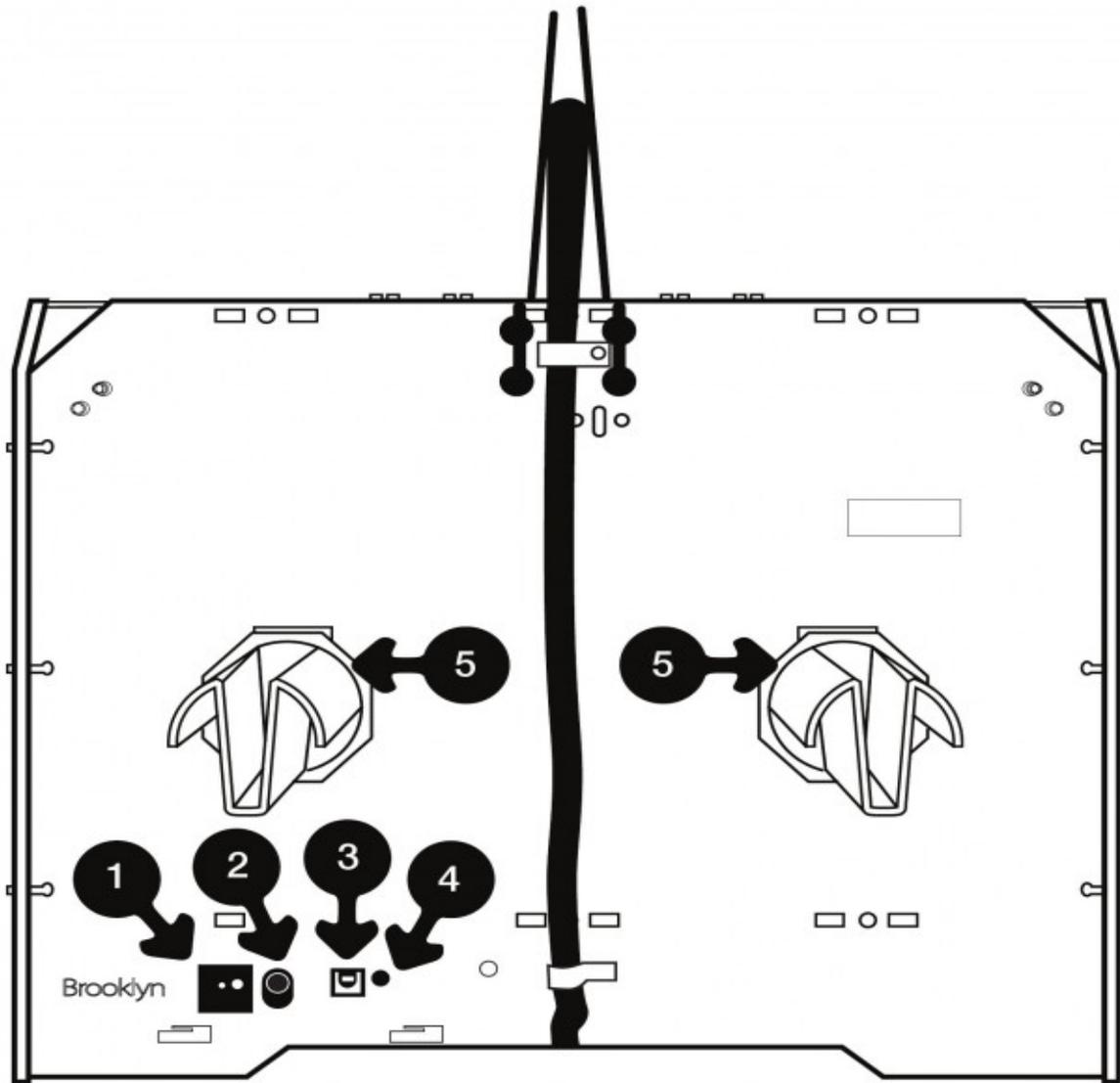
- The Replicator is generates **high temperatures** that can cause injury.
- Never reach inside the Replicator while it is in motion
- Please allow time for the Replicator to cool down after using it. (This includes the thing you've just built. The plate it sits on is hotter than boiling water.)
- Make sure you don't have a static charge on your person since the replicator is very sensitive to electrostatic discharge. Please do one of the following things to get rid of static charges:
  - o Touch the back of a computer
  - o Touch the metal runner plugs in the room
- Do not leave the Replicator unattended during operation
- Please wait for printed objects to cool down before removing them from the build platform.
- Vapors/fumes may be irritating at operating temperatures. Do not sit too close to the Replicator while it is in operation because of the fumes
- **Keep Hands Clear** when operating the Replicator. (you don't want your hands to burned)

## The Replicator Design



### Front Side:

1. Stepstruder MK8 (attached to mount)
2. Build Platform
3. LCD Interface Panel



**Back:**

1. Power switch
2. Power input
3. USB input
4. Reset switch
5. Right and left spool holders

Starting up:

### **Step one: Create or obtain a model to print**

- The replicator only accepts .stl(STereoLithography) files so you need to convert your 3d model file into an .stl file
- best way into converting stl files is downloading a conversion program like meshlab it has a option exporting your model into an .stl file (you can download meshlab on your home computer and the link to the software is below) Alternatively, 'Sketchup' has a plugin to export to .stl format.

### **Step Two: open Replicator G on controller machine and set up a model to print**

- Sign in to the controller machine
- Click on the Replicator-G icon located on the desktop, so the program will open
- DO NOT reconfigure the control panel settings without approval
- Things you can do to the 3d model using Replicator-G
  - o Move
    - Is the model oriented correctly? If not then move the object to your likings
  - o Scale
    - Is it scaled to your needs? (See troubleshoot below)
  - o Rotate

Once the model is in position and ready to go, you'll need to slice it. Click "generate Gcode" button

### **Step 3: if Problems then Troubleshoot**

You can also choose to "Use Raft/Support" which prints a thick base underneath your print, which can later be broken off. These can help with tall, thin prints that may have trouble sticking to the build platform.

Select the filament colors or materials

- Easiest way is to click on utilities → filament options

There is no plastic coming out of the extruder

- Call the staff and he/she will assist you

The things I'm building won't stick to the platform

- Clean the build platform or ask a staff to move it up slightly
- If you are still having troubles run the leveling script again, from utilities->level build plate.
- Another trick that can help is to raise your build plate temperature.- ask for guidance from a staff member (also see the 'hints' file)

Nozzles aren't aligned properly or aren't the same height

- Talk to a staff member and he or she will assist you

My stepper is stuck/making a weird grinding noise

- The gantry isn't aligned properly ask a staff member and they will assist you

How do I make model bigger or smaller

- Once you have imported .stl file into ReplicatorG, you will see a button on the right-labeled scale.
- To adjust size of the model you click on the image and hold
  - Dragging to right or up will enlarge the model while dragging left or down will shrink it.
- You can also change the scale manually
  - Change numbers in the field next to the scale button. Inputting a 2 will double the size of model while inputting 0.5 will halve it

#### **Step four: have patience**

- The replicator G can take an hour or more for the model to be printed so have patience

#### **Optional: Dual Extrusions for the Replicator (for printing two objects at one time)**

- The objects that you would dual-print have to be smaller than the width of the two nozzles
- Any dual extrusion model you find is going to be composed of two .stl files one for each color or material. Make sure you have both.
- Then go to Gcode on the menu and select "Merge .stl for Dual Extrusion"
- You will see three fields, two for the extrudes (gcode or .stl) the third file will be the merged gcode
- Click merge and two windows will pop up- one to generate the gcode for each of your two component parts

- After changing your settings click generate gcode on both windows and print

### **Useful Sites**

- Thingiverse – [www.thingiverse.com](http://www.thingiverse.com)
  - Contains thousands of 3D models
- MeshLab [www.meshlab.sourceforge.net](http://www.meshlab.sourceforge.net)
  - Meshlab is a program where you can design and customize your own 3-D Model. The program can also be used to convert the 3D models to .stl files.
- Google 3D Warehouse
  - Convert Google sketch-up files into. collada and then use the Meshlab program to convert it into .stl
  - Millions of 3d models stored in this site

Contact our staff if you need additional help using the replicator.