

Thin Wall and Solid Cube Calibration for KISSlicer – The Definitive Guide

First thing is to get the software calibrated to the hardware. These tests set the baseline, upon which KISSlicer makes its flow calculations for paths and feeds. Once you get your calibration dialed in, more complex prints can be tried and other adjustments can be made in order to refine a print.

- Make a test piece (a squat rectangle is good, maybe 15x15x5 mm). This will be your calibration cube used in two tests. The model needs to be a 5-sided solid, without modeled walls. All models sent to KS need to be Manifold; one outside, one inside, no holes. Leave models on Thingiverse for another day, as they most often have their own problems. **Keep It Simple.**
- Move the *Fast / Precise* slider to 75%+ (you're looking for accuracy, here).
- In the *Printer* tab:
 - *Firmware* tab:
 - Choose the correct *Firmware* for your machine.
 - *Hardware* tab:
 - *Loop / Solid Infill Overlap* = 0.50
 - *Extruders* tab:
 - Leave *Gain* = 1 (It is a gross setting, only used in rare instances).
 - *Speed* tab:
 - Leave these at defaults for now.
- In the *Ptr-Gcode* tab:
 - Press the *Defaults* button to enter the basic codes for your chosen *Firmware*; overwriting any that were there.
- In the *Material* tab:
 - *Extrusion Width* = *Nozzle Diameter*
 - *Flow Tweak* = 1.0
 - With vernier calipers or micrometers, accurately measure the filament stock diameter (it often isn't exactly 3mm or 1.75mm). This is one of the most important values, as KS computes the required extrusion volume (*Flow Rte*) for a given *Speed (Feed Rate)*, *Layer Thickness* and *Extrusion Width* based upon it. Measure in multiple places along its length and at differing angles around the cylinder. Enter the average in the *Material* tab > *Diameter* box.
- **"Thin Wall Calibration"**
 - In the *Style* tab:
 - *Loops* = 1
 - *Skin Thickness* = 0 (no top/bottom--only *Loops*)
 - *Infill* = Hollow
 - Slice and Print.
 - Measure the printed wall thickness and compare it to your *Extrusion Width*.
 - Adjust *Flow Tweak* by small amounts to make these equal. Sometimes, all it takes is only +/- 0.1 or less.
- **"Solid Cube Calibration"**
 - In the *Style* tab:
 - *Loops* = 1
 - *Skin Thickness* = *Extrusion Width*
 - *Infill* = 100%
 - Slice and Print.
 - Based on the interior of the part (not near the loops), adjust the *Flow Tweak* to minimize gaps between the rows, ridging of rows or bulging of the top and sides. You are looking for the best overall surface quality.
 - Based on the *Loops and Solid Infill* interface, adjust the *Loop / Solid Infill Overlap* to obtain good contact between the *Perimeter* and the *Infill*. No lumping upon the *Perimeter*, only small, if any, triangle gaps between "turns" at each end.

You may find that the *Flow Tweak* for one test is optimal in one direction, while the *Flow Tweak* for the other is opposite; but they shouldn't ever be very far apart from each other; if they differ at all.

This should be done for each material, as the diameters and melting points change. Yes, even colors from the same manufacturer. Varying pigments will cause different behavior.