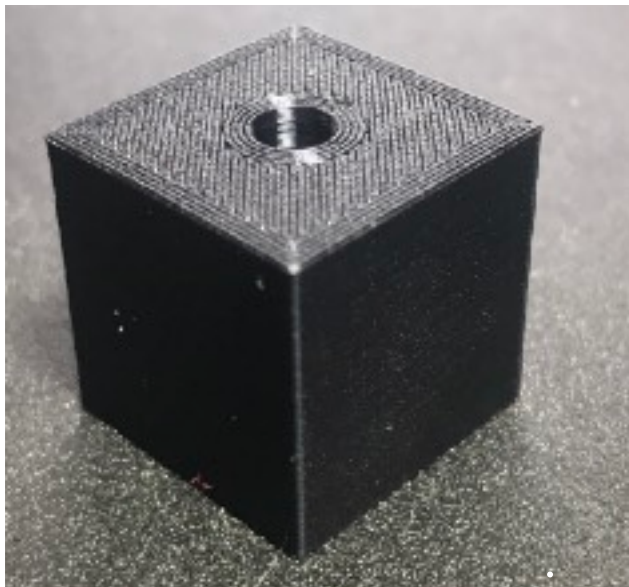


A2: Getting Started with 3D Printing



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Human Centered Design + Engineering
Digital Fabrication 598

Goof Offs

Slack

Assembly

Prints

Fails

Files

Goof Offs



Printer Assembly Notes

- Printer purchased Wednesday, April 1
- Arrived Friday, April 3 from Shenzhen, China
- Build took 3 hours using included Creality instructions and Youtube set-up videos.
- May have over tightened eccentric bolts and caused binding. See Complications & Workarounds.

Slack Documentation:

kevin philbin [Apr 3rd at 4:15 PM](#)

How many icebergs did we melt air freighting our printers from Shenzhen?

Ben [19 days ago](#)

We have haven’t been driving anywhere so it’s all even

kevin philbin [18 days ago](#)

Ha! Good point!

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kevin philbin [Apr 5th at 2:24 PM](#)

Please is there a prefered mac iOS Slicer to use with the Ender 3 Pro? It appears that Rhino has a slicer for Windows.

JoshuaV [17 days ago](#)

For starters, I'd recommend Cura, as there are many predefined printers that you can simply import with their own printer-specific settings.



2

kevin philbin [17 days ago](#)

thx Joshua!

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kevin philbin [Apr 5th at 8:27 PM](#)

My corners started peeling up mid build. Any recommendations on setting changes or best practices?

Robert Bennett [17 days ago](#)

Most likely cause, at least in my experience, would be that the nozzle is too far from the print bed. If room temperature is varying a lot (printer is by a fan/vent/window/door) the temperature change could be a cause as well.

kevin philbin [17 days ago](#)

Thx Robert. I'll check my nozzle gap. Maybe print on a raft would help?

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kevin philbin [8:55 AM](#)

Cyrus, If I’m hearing you correctly, your Y axis is not working? Therefore we need to troubleshoot the movement of the print bed?

Cyrus Majd [Apr 7th at 8:57 AM](#)

Thanks for looking at this @kevin philbin, but the elephant printed correctly and I have no issues printing the test pattern you posted. So I'm not sure why it's okay in some cases and not other ones

kevin philbin [12:57 PM](#)

Nice! You’re making progress!

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kevin philbin [Apr 7th at 3:50 PM](#)

I’m getting closer! But still had some issues. I ran the clean calibration test then immediately ran the panther print. Anyone have thoughts about what could help with the loose spaghetti? I’m extruding at 200c and bed is at 50c. Thx!

Image from iOS

kevin philbin [15 days ago](#)

@Nadya Peek @JoshuaV

please any thoughts on how to improve?

Cyrus Majd [15 days ago](#)

@kevin philbin, not ready to call it fully tested, but firmware upgrade seems to have resolved all my issues!

More to come on this soon; test should be done in 3-4 hrs ...

kevin philbin [15 days ago](#)

Rad! Thx for the update.



Nadya Peek [14 days ago](#)

loose spaghetti can also come from how you slice

kevin philbin [14 days ago](#)

Thx! I'll look into slicing setting adjustments.

Cyrus Majd [14 days ago](#)

Update first test looks great!!! I fell asleep and running the second test now

One negative thing that stood out is the new firmware slowing down the prints (edited)

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Slack Threads

kevin philbin [Apr 14th at 9:20 AM](#)

Please help with STL export. I've tried a few settings but it appears I’m missing something. (edited)

Screen Shot 2020-04-14 at 9.12.57 AM.png

Jasper Tran O'Leary [8 days ago](#)

Some things to check: did you BooleanUnion everything in Rhino so that it's a single closed polysurface? Also can you try loading this in Cura or slic3r or another slicer? It's kind of hard to see what's going on with MacOS's default STL previewer

Victor Allen [8 days ago](#)

It's also a little difficult to tell from the screen shot, if the cutting edge is capped/solid or not.

kevin philbin [8 days ago](#)

Thx for the input!

Ben [8 days ago](#)

Can you share your 3dm file?

kevin philbin [8 days ago](#)

happy to. lemme check Jasper and Victor's points and i'll post it. thx for looking.

kevin philbin [8 days ago](#)

Binary

Skate3.3dm

[3 MB Binary](#)

[— Click to download](#)

kevin philbin [8 days ago](#)

@Victor Allen Good point. Cutting edge was not capped.

kevin philbin [8 days ago](#)

I tried cap command then selected both extrusions but then it filled across entire plane. Please do know how to cap just between my to extruded walls?

Ben [8 days ago](#)

i made a quick video for you. no sound sorry. delete the extrusion with a right to left selection. use extrude curve and make sure you select the solid option. the extrude outer curves the ame way and then boolean union. sending video link in a minute

kevin philbin [8 days ago](#)

thx Ben!

Ben [8 days ago](#)

<https://drive.google.com/file/d/1W6egYdUMCNwFcLvezf1ZloPG98LNIqqb/view?usp=sharing>

kevin philbin [8 days ago](#)

Sweet that totally helped

kevin philbin [8 days ago](#)

Thanks a ton!

kevin philbin [10:05 AM](#)

ok thx. I'll check that too.

kevin philbin [10:26 AM](#)

Been crashing a bunch! Having issues with saving and permissions. So I'm delaying in posting the file.

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kevin philbin [12:57 PM](#)

Nice! You’re making progress!

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kevin philbin [10:56 AM](#)

My prints are off by 5mm on the Z axis. Is this [All3dp.com](#) calibration workflow the right approach?

Screen Shot 2020-04-17 at 10.34.55 AM.png

JoshuaV [10:57 AM](#)

wait, 5mm? Hmm, that sounds like more than tuning the extruder would fix. In your Ender3 menu settings, what is the Z steps-per-mm?

kevin philbin [11:02 AM](#)

Thx for chiming in . I'll take a look.

[11:05400](#)

Paige Johnson [11:06 AM](#)

Hey Kevin, you might be skipping z-steps. Make sure your coupler on the lead screw is tight!

JoshuaV [11:07 AM](#)

Ok 400 is correct (for ender3). Looking at your part, the first half (in Z) looks rather squished. @Paige Johnson is right. Check those screws! (edited)

kevin philbin [11:15 AM](#)

Ok checked and snugged! Thx for the fast response @JoshuaV @Paige Johnson

kevin philbin [11:41 AM](#)

Oh my. Maybe too snug?

Image from iOS

JoshuaV [11:42 AM](#)

Hmm, something on the Z axis may be binding.

[11:43](#)

Your first layer with brim looks great.

[11:43](#)

And your previous pic looked fine in XY

Vincent [11:43 AM](#)

I had to reassemble mine a few times as it was binding make sure the brass screws on the thing that attaches to the extruder is not too tight

JoshuaV [11:45 AM](#)

Here's one suggestion for debugging: unscrew the coupler from the leadscrew. You should now be able to freely move the y axis up and down with your hand (and the leadscrew will come with it). By hand, move it up-and-down. Does it bind? If so, you may need to loosen-and-readjust some parts of the Y axis (Step 6) until they slide smoothly.

[11:47](#)

Also check page 3 of this to see if your motor is holding the leadscrew at an angle.

https://docs.google.com/presentation/d/1QpFYa3phJkS3OK3oN58TejI3rdL9JeuzDDMPDz3TRI/edit#slide=id.g738f6ce37f_0_117

kevin philbin [11:58 AM](#)

Great input. I'll get to it. Thx @JoshuaV and @Vincent

kevin philbin [3:13 PM](#)

Great advice @JoshuaV. Thank you.

Possibly had small bind from misalignment and/or over tightening bearings. Easy to feel when taking off leadscrew coupler. I adjusted z axis struts, bearings, realigned Z motor, rebalanced feet and top brace.

Some of the smaller screws had loosened up on the extruder and Y-axis.

Image from iOS

kevin philbin [Apr 6th at 11:18 AM](#)

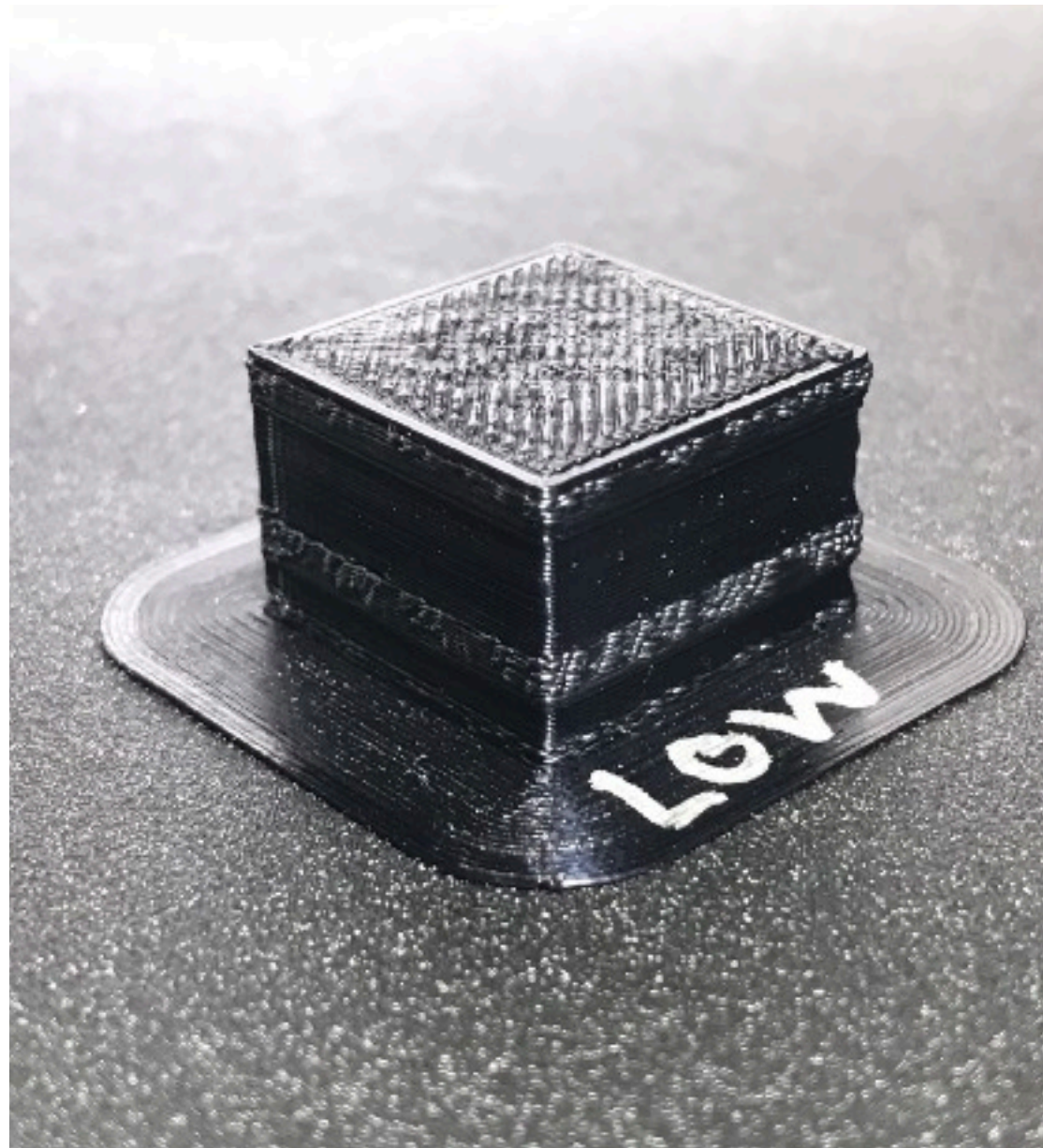
I’m making spaghetti!

Image from iOS

Digital Files

• 2cm Cube Low Quality	3dm	STL	Gcode
• 2cm Cube Med Quality	3dm	STL	Gcode
• 2cm Cube Ultra Quality	3dm	STL	Gcode
• 2cm Cube Concentric Top/Bottom	3dm	STL	Gcode
• 2cm Tube Single Extrusion	3dm	STL	Gcode
• 2cm Tube Double Extrusion, Random Z axis	3dm	STL	Gcode
• 2cm Cylinder .1cm Tolerance w/ supports	3dm	STL	Gcode
• 2cm Cylinder .005cm Tolerance	3dm	STL	Gcode
• 20mm Cube with 5mm hole	3dm	STL	Gcode

Test Prints



**Failed 2cm 26min print time
14.78mm H x 20.91mm W x 20.65mm L**

Complications & Workarounds

- Jaguar Print, Making Spaghetti
- Cube Prints, Z axis bind, keynote image
- Cat, Pig, Puppy
- Print Bed Leveling issues
- Frame and Table leveling issues
- Other failed prints