

HOW TO OPERATE THE INSERT NUT PRESS

V4

MARCH 26TH, 2025

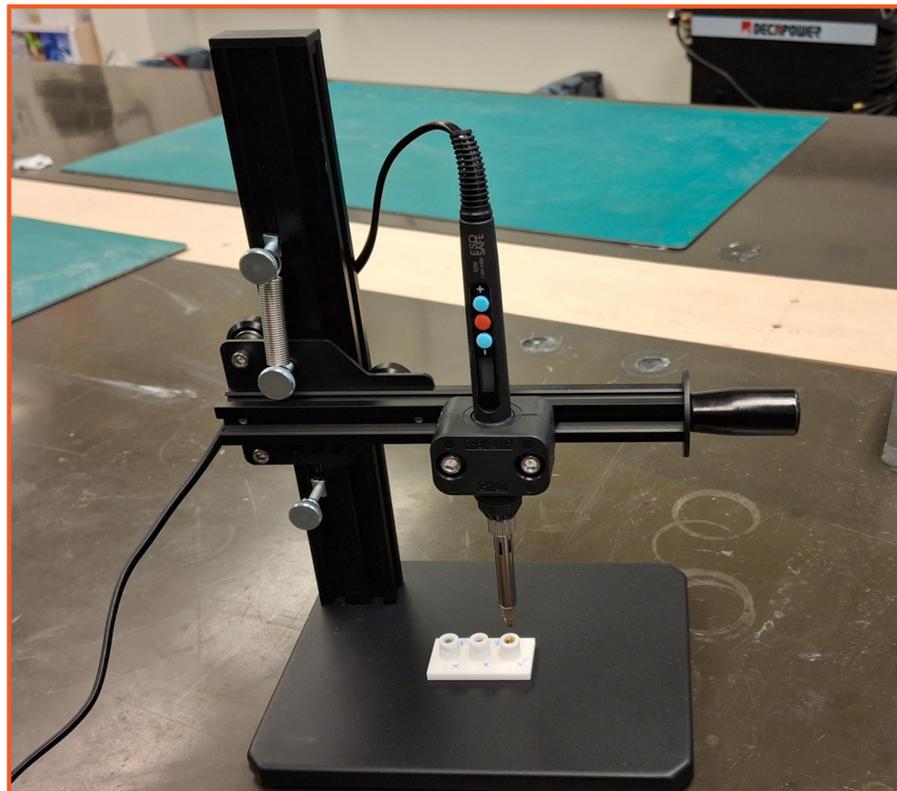


Table Of Contents

Page 1 - Parts Of The Insert Nut Press

Page 2 - Posts Design For Insert Nuts

Page 3 - Designing Objects For Insert Nuts

Page 4 - Setting Up The Insert Nut Press

Page 5 - Inserting The Insert Nuts

1

THE INSERT NUT PRESS - PARTS

1a - Solder Iron.

1b - On/Off.

1c - Temperature Control + .

1d - Temperature Control - .

1e - Up/Down Arm.

1f - Height Control Lock Slider & Knob.

1g - There are different size insert nut dies for different size insert nuts. The "screw on die" should fit snugly into the insert nut you will be using.

1h - Our selection of brass insert nuts, with the sizing as well as the hole size to create.
Eg: 10mm (length of nut) x 7mm (outside diameter of the nut).

M5

10mm x 7mm - Make the hole 5.8mm

8mm x 7mm - Make the hole 5.8mm

6mm x 7mm - Make the hole 5.8mm

M4

10mm x 6mm - Make the hole 5mm

8mm x 6mm - Make the hole 5mm

6mm x 6mm - Make the hole 5mm

4mm x 6mm - Make the hole 5mm

M3

10mm x 5mm - Make the hole 3.7mm

8mm x 5mm - Make the hole 3.7mm

6mm x 5mm - Make the hole 3.7mm

4mm x 5mm - Make the hole 3.7mm

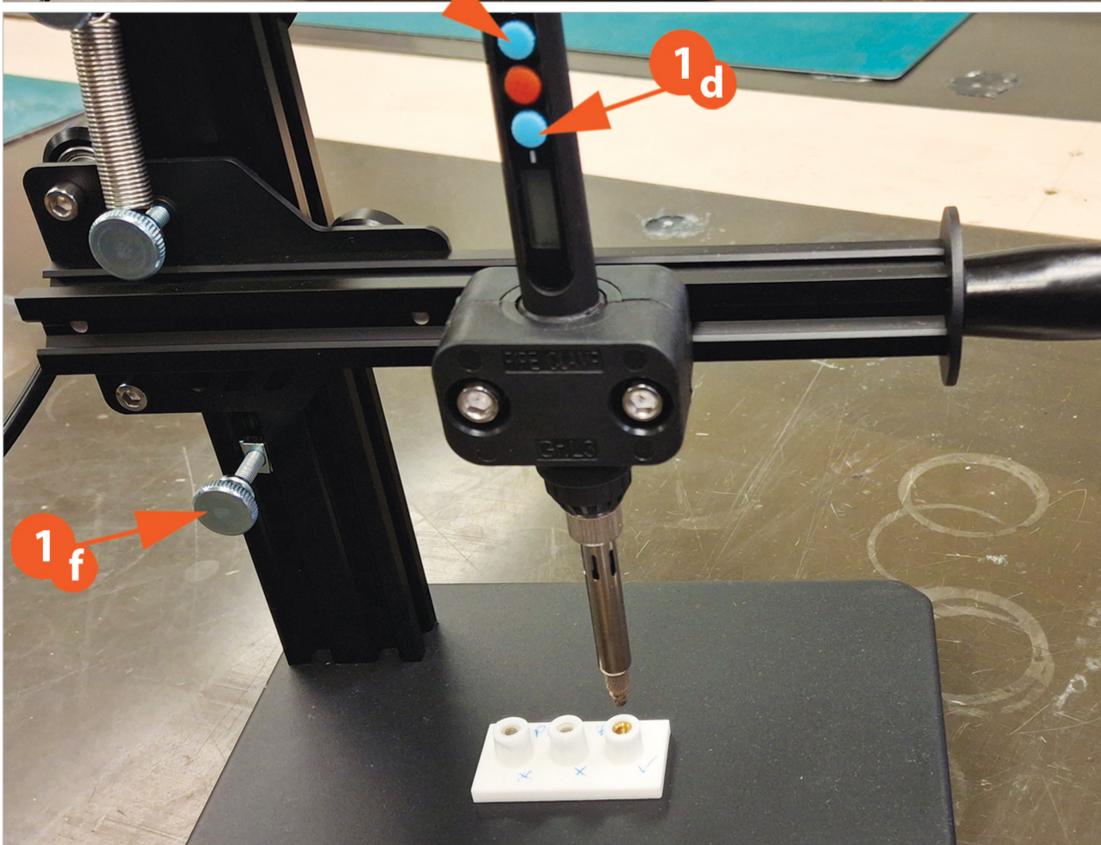
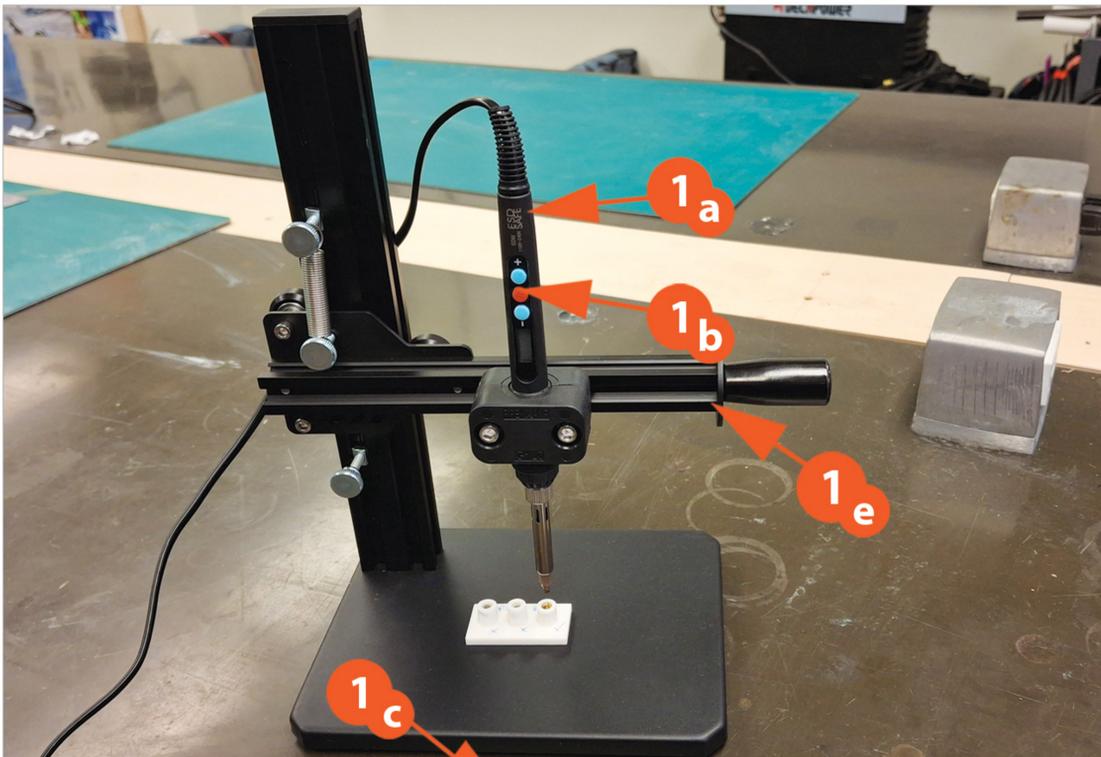
M2

10mm x 3.5mm - Make the hole 2.9mm

8mm x 3.5mm - Make the hole 2.9mm

6mm x 3.5mm - Make the hole 2.9mm

4mm x 3.5mm - Make the hole 2.9mm



2

CREATING THE POSTS FOR THE INSERT NUTS

To properly seat a brass insert nut, once heated it must be inserted at exactly 90 degrees until it is flush with the top of the post or top surface of your object. This is what the press is for.

You also need to have a dense post (usually a cylinder that the insert nut goes into). To have a dense post it involves having a high percentage infill density. With certain printers like the Ultimaker S5 & Cura software, you can change the density of specific areas. (See Makerspace website resources Cura/Multiple Density Prints for more info). But on most 3D printers you will have to increase the overall density, not just the posts. If you don't do this, the brass insert nut will not be secure, and will work itself loose.

To change the Density in Bambu Labs
 2a - Go to the Strength Tab.

2b - Change the Sparse Infill/Sparse Infill Density to 90% (from 15%).

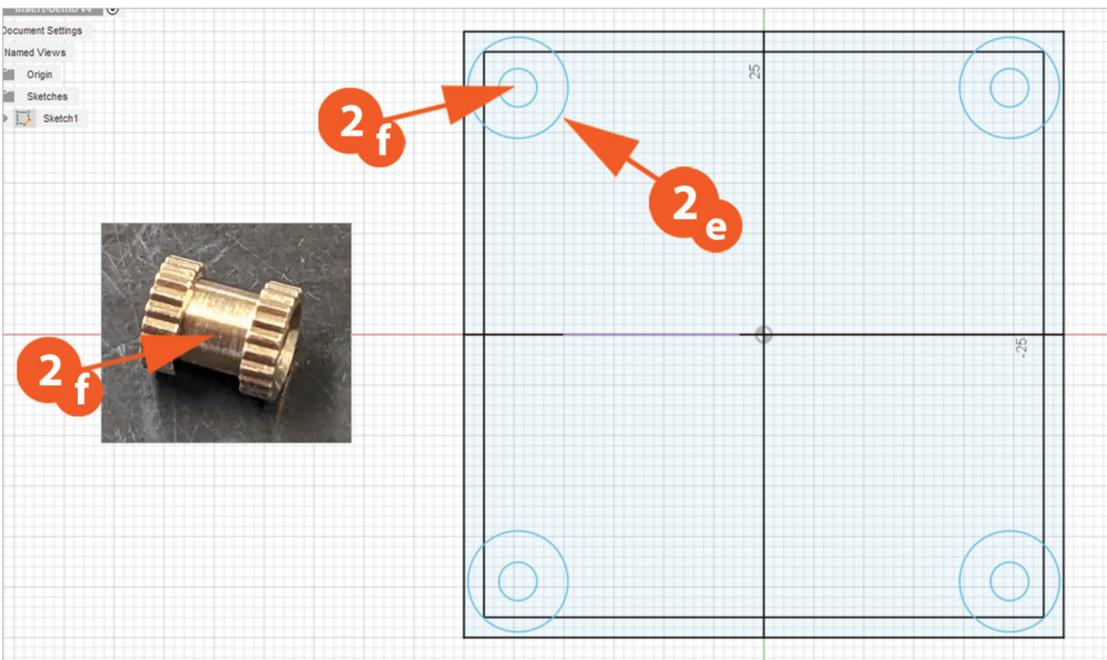
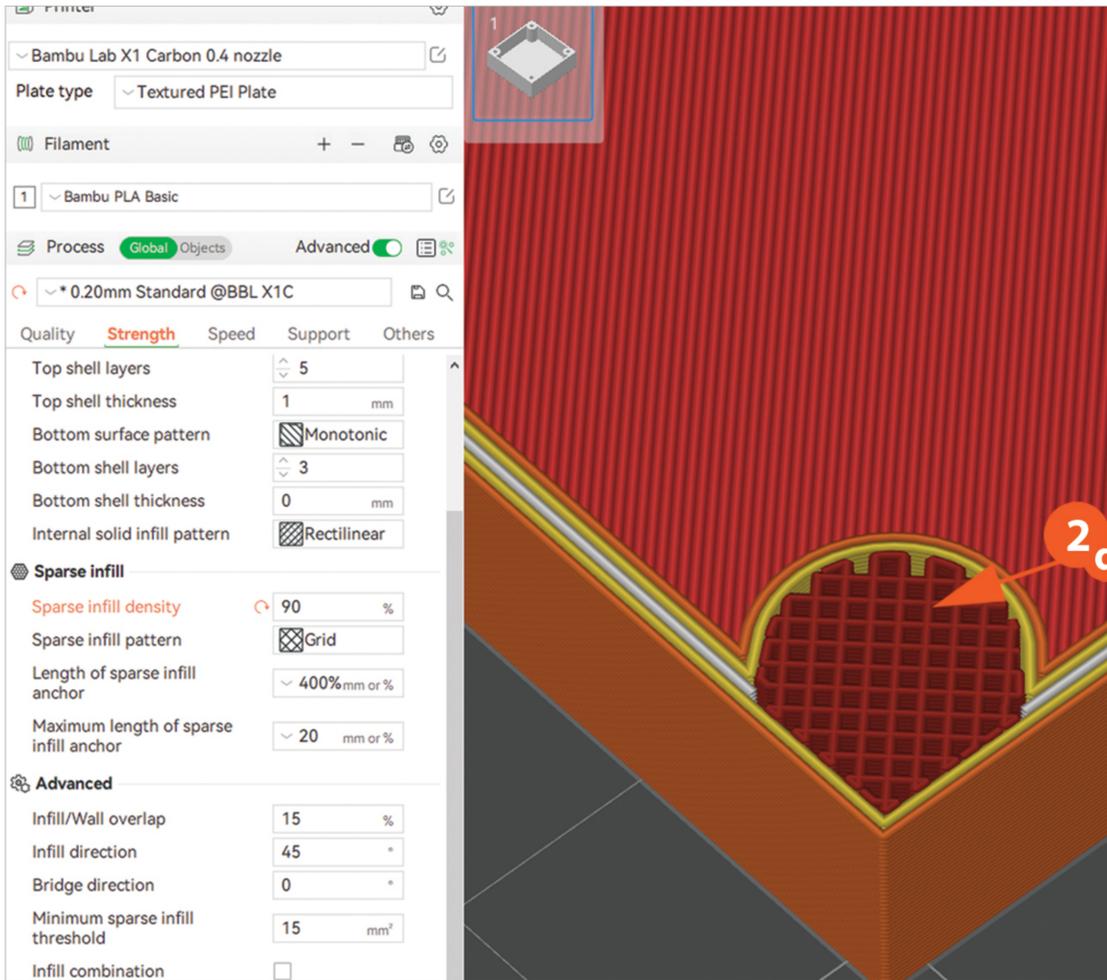
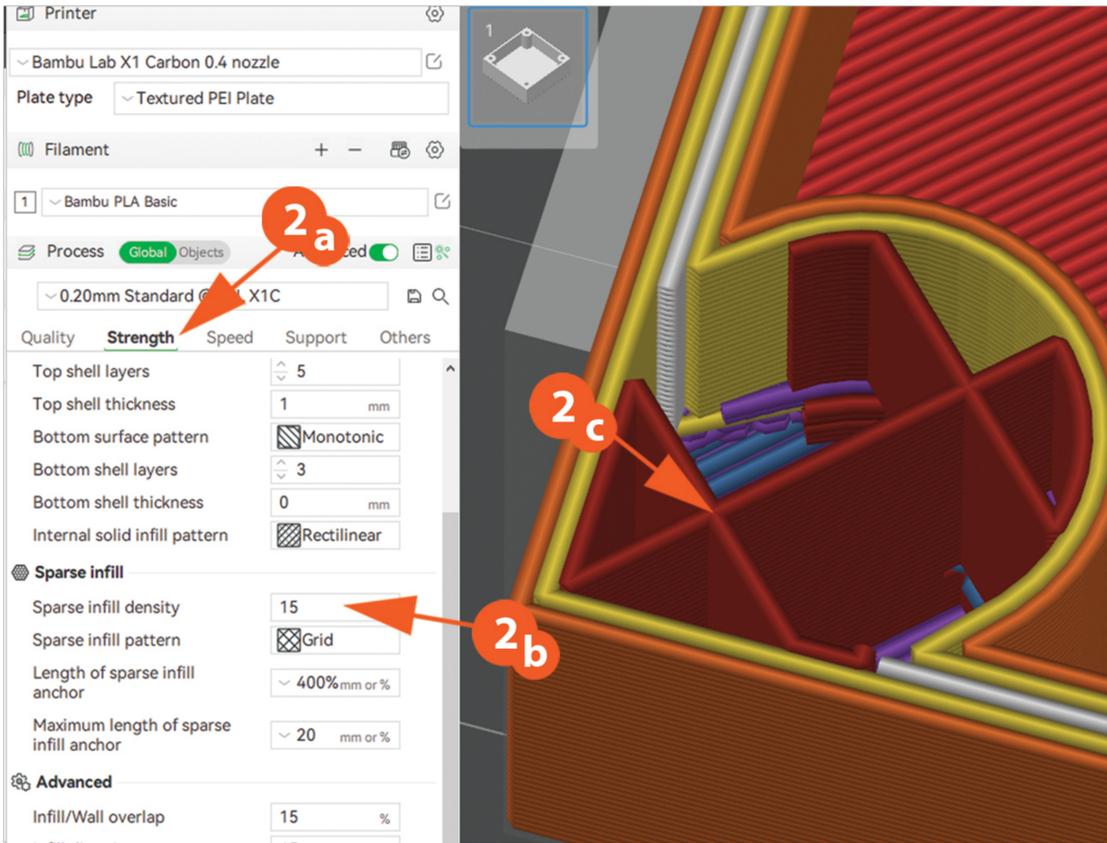
2c - Example of the posts at 15% Infill Density.

2d - Example of the posts at 90% Infill Density.

When designing your object for insert nuts you will need to create posts or solid areas for the insert nuts to go into.

2e - Example: To create my posts in Fusion, I will start with a sketch. I will first create a larger outer circle to become the post. For this sample I am using 5mm insert nuts, so the posts I am making 10mm.

2f - I will then create an inner circle, the diameter needs to be the smallest diameter of the insert nut, so the 5mm insert nut's small diameter area is 3.75mm.



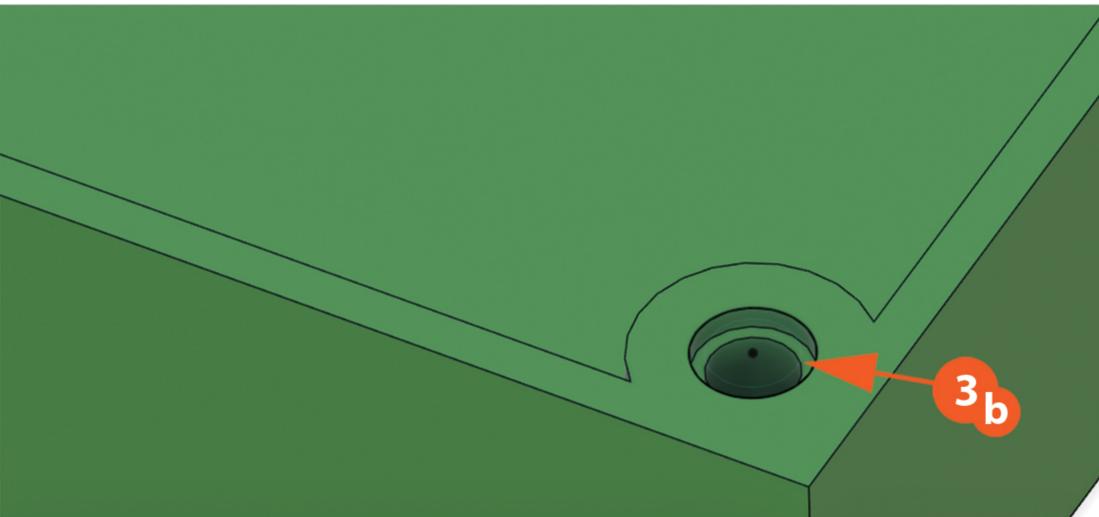
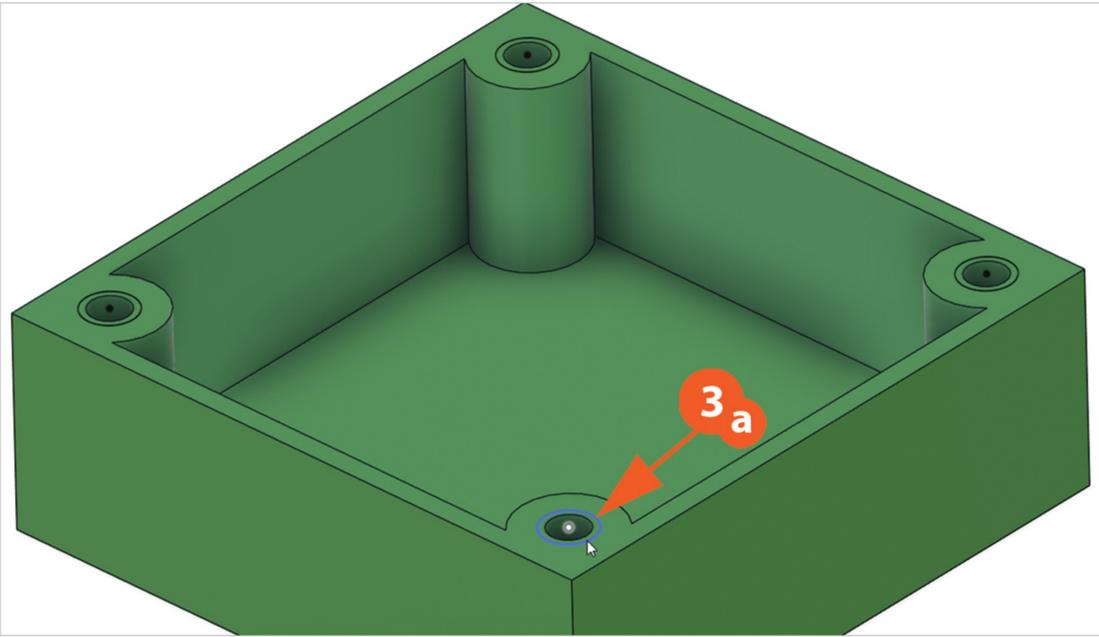
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Designing The Object For Inserts

3a - This is showing a box with the holes for the insert nuts. I will now (in Fusion) create a sketch on the top layer of the base. I want to create a 5.1mm circle that will fit the outer diameter of the Insert Nut. I will make it 1mm deep.

3b - The insert landing area is now extruded. This is used to hold the insert nut in the exact alignment before I press it in.

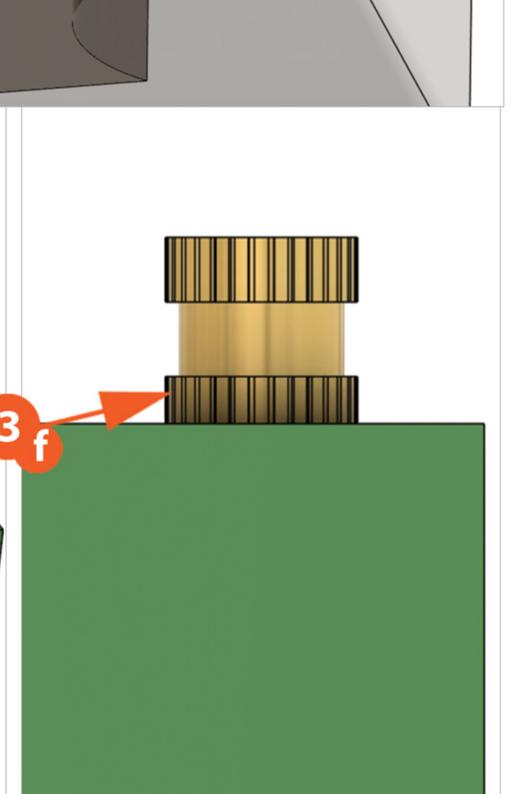
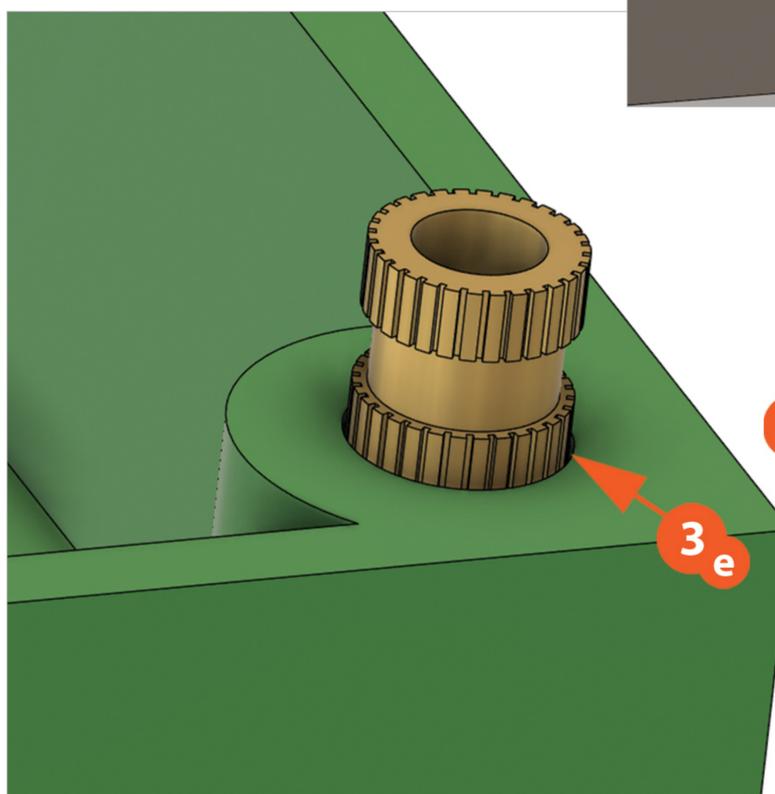
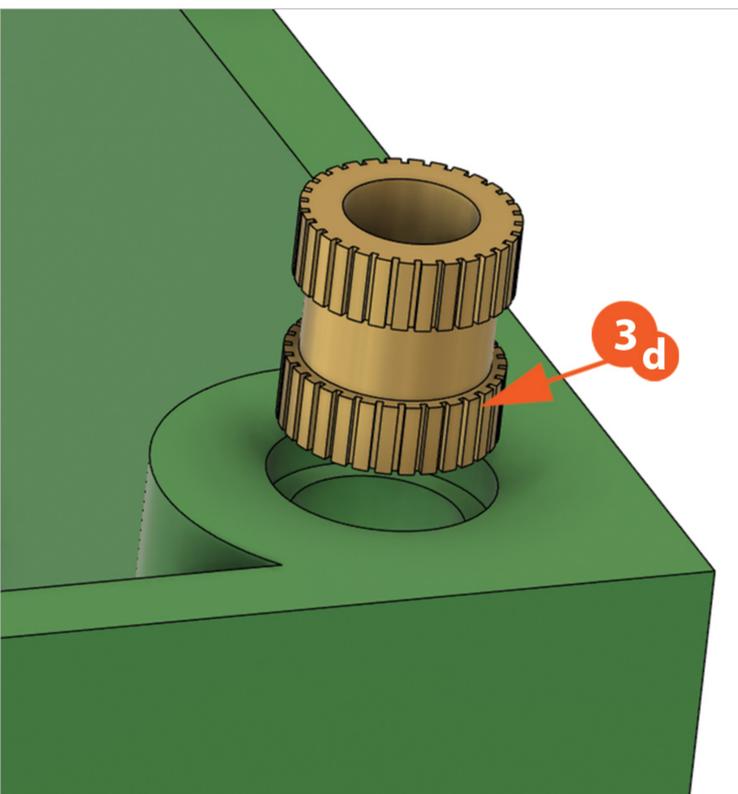
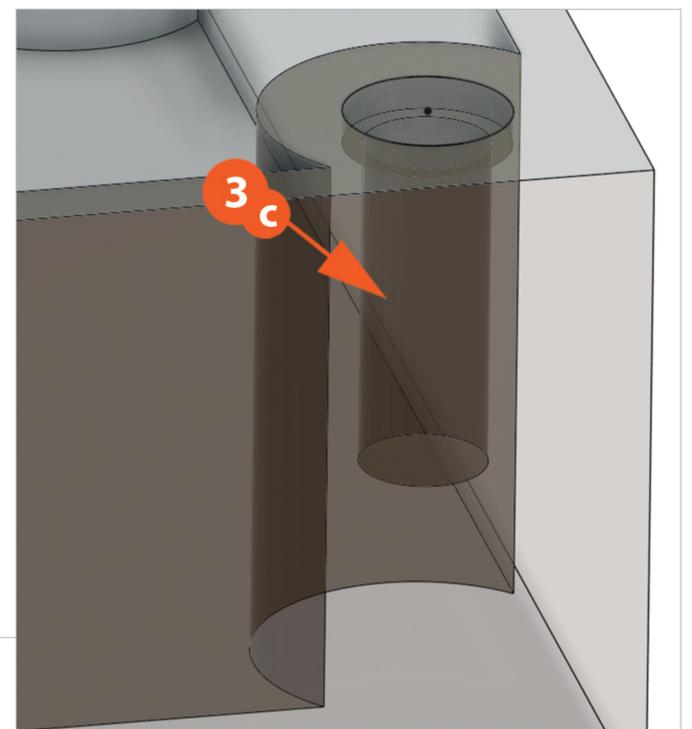
3c - The hole for the insert nut should be the same height as the insert nut, plus 1mm for the locator hole. I have made the box transparent to show how deep the insert nut holes are.

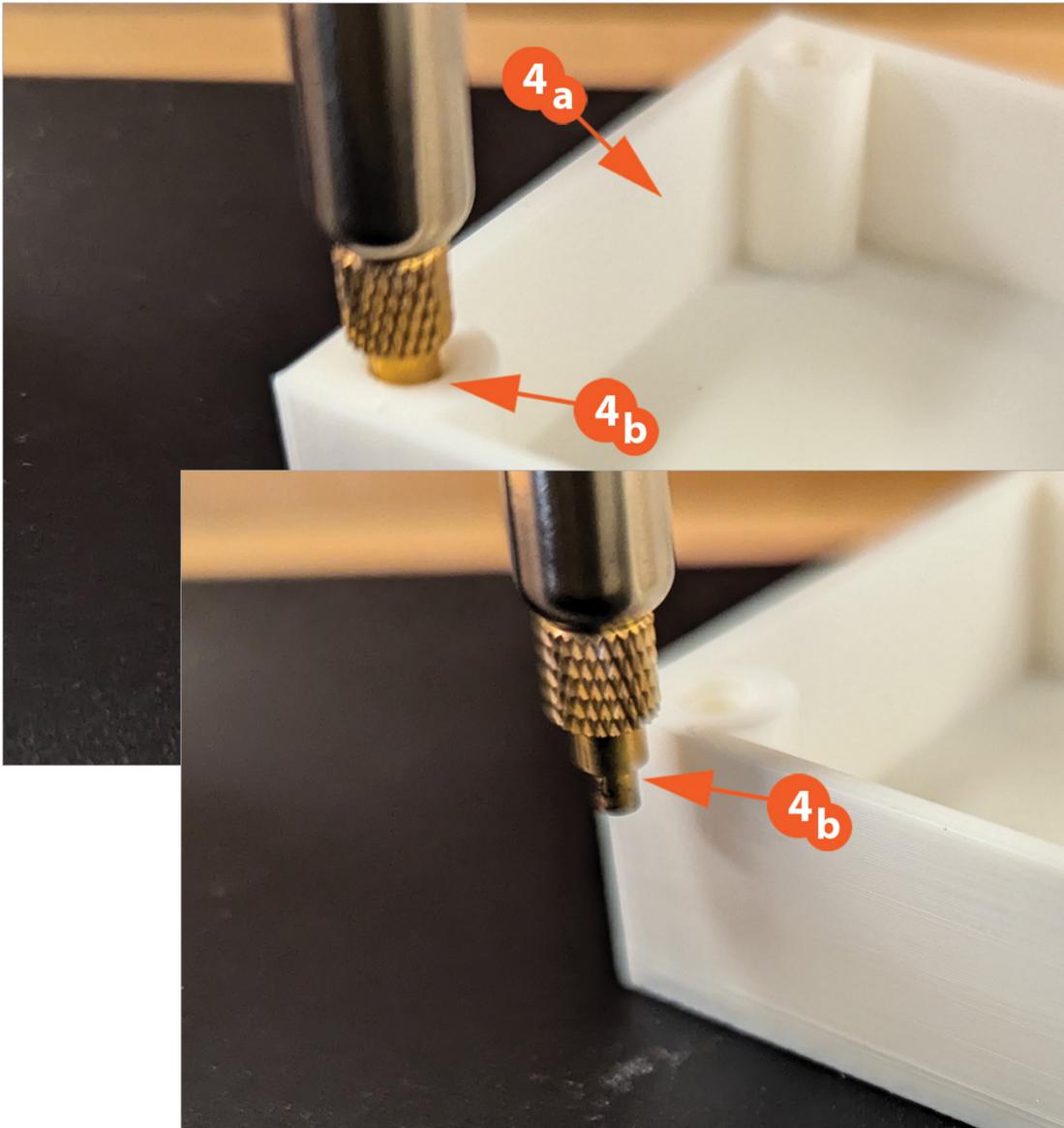


3d - Showing the insert nut above the insert landing area.

3e - Showing the insert nut in the insert landing area.

3f - Showing the insert nut in the insert landing area, side view.





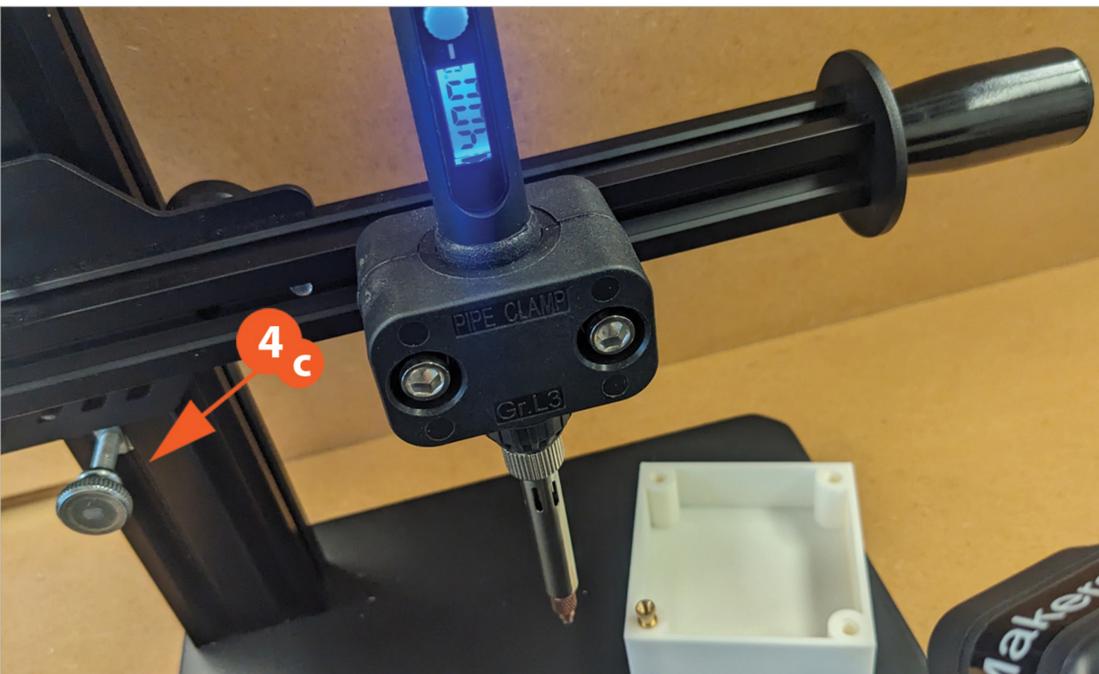
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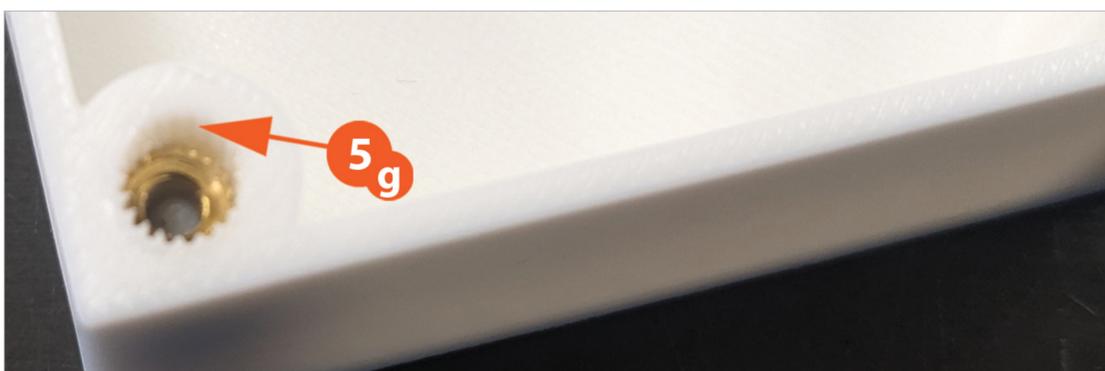
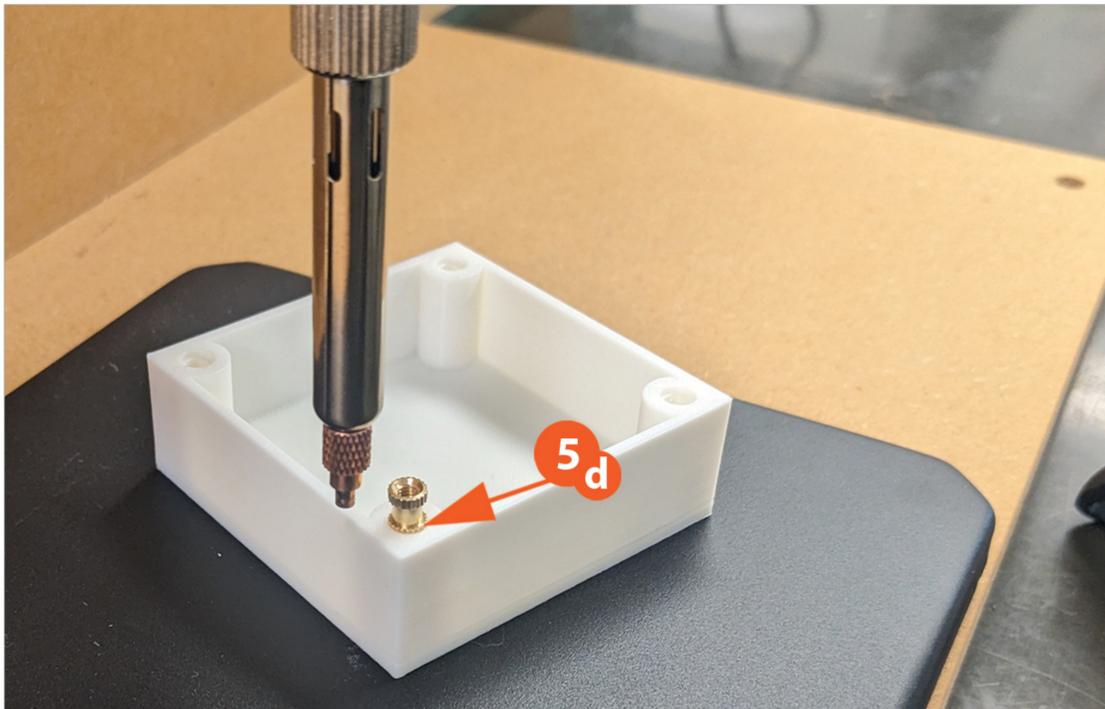
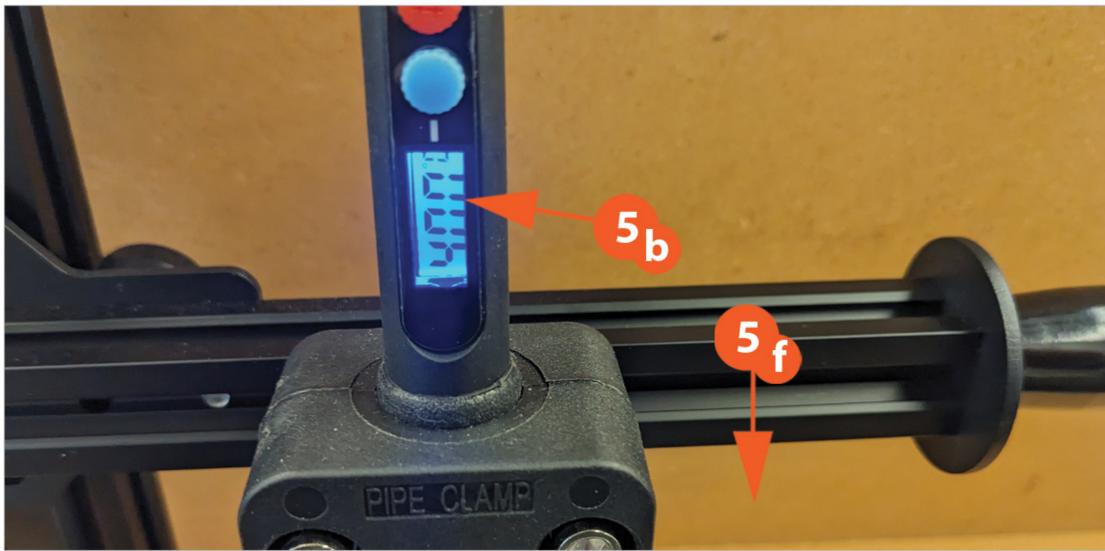
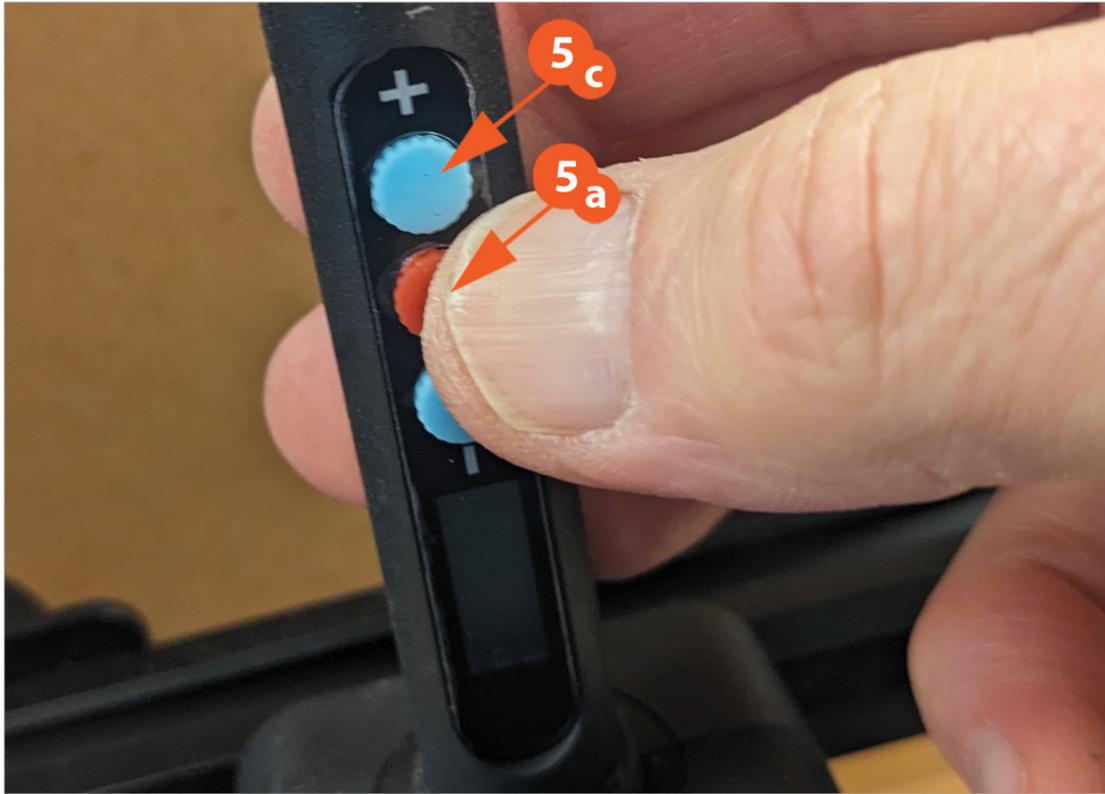
Setting Up The Press

4a - Showing the 3D printed (PLA) box design. We will be inserting the brass insert nuts into the bottom of the box.

4b - Once you have the proper die in, lower it down so the insert nut pin (where it meets the stem), is flush with the top of your landing ring, ie 1mm past the top surface. This is where the insert nut will press down to.

4c - Holding it to the exact height, loosen and move the height control knob, and move it so it is flush with the arm. Tighten it up. Double check that when you lower the die down, it stops at the top of your object or posts.





5

Turn The Iron On - Insert The Nut

5a - Press and hold the Red Button on the solder iron until the Digital Read Out lights up.

5b - The Digital Read Out is on.

5c - We want to set the temperature to 400. If it is lower press the + (positive) blue button until it reaches 400. Use the - (negative) Blue Button if the temperature is to high.

5d - Place the insert nut into the landing hole on your object.

5e - Line up the press die to the insert nut.

5f - When the readout indicates 400, slowly lower the handle down hold the part with your other hand to keep it steady.

DO NOT PUSH hard, as the arm can bend and change the angle.

As soon as the die/insert nut is flush, lift the arm back up.

5g - This how the insert nut should look, flush to the surface.

*See the How To Video under resources on the website.

